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HETEROTOPIC OSSIFICATION IN THE CAVITY WALL OF A UTERUS

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Elsewhere in this *Journal*[1] I reported the finding of heterotopic ossification in an ovary, following on a chronic adherent appendicitis. This article was abstracted by Fleming of Dublin in *Excerpta Medica*.[2]

In the current number of *Excerpta Medica*[3] there appears a very interesting review of an article by H. D. Taylor entitled *Vascular Congestion and Hyperemia: Their Effect on Structure and Function in the Female Reproductive System*. It deals with the so-called *Congestion-Fibrosis Syndrome*.

As a result of the interest displayed by many colleagues in my first contribution on the formation of heterotopic bone in the female genital tract, and my much criticized contribution on ovarian fibrosis at the Medical Congress held in Cape Town in September 1949,[4] I venture the publication of another article relative to the subject which should interest some readers.

Mrs. H., aged 49 years, consulted me during 1930. She is a 6-para, having had five normal pregnancies and a sixth one which ended in an abortion 18 months before I saw her first.

Since the abortion she has had excessive menstrual loss and an increasing degree of pain during her periods. She also suffered from leucorrhoea. When I saw her first she actually had acute lower abdominal pain with the loss of bright red blood from the uterus. The cervix was unhealthy looking, being lacerated and hypertrophied. There was obvious endocervicitis. Her uterus was not abnormal in size, of a very hard consistency, but freely mobile.

A diagnostic curettage after a difficult dilatation of the cervix produced curettings, hyperplastic in nature, but not obviously malignant looking, and from the body of the uterus a very hard nodule, the size of a mature yellow maize seed and equally hard was produced. I amputated the cervix and sent a portion of it and the curettings with the hard nodule to the South African Institute for Medical Research, Johannesburg, for microscopy. The report was that the curettings (Fig. 1) showed chronic endometritis, and the hard body (Fig. 2) bone formation. The cervix was not the site of malignant change. This case has had no further gynaecological trouble since. Her periods ceased completely within a year of the operation. (The photomicrographs are from new sections cut and prepared for me in September 1949 from the material sent to the South African Institute for Medical Research 20 years ago.)

At that time (1930) the report stated that these nodules are occasionally found in curettings. I had never before come across such a finding or seen it mentioned in textbooks of gynaecology, nor have I had a similar case since then.

If a preliminary 'straight' roentgen plate had been taken of the pelvis of this case and the case first reported by me, the finding of bone in the situation of the ovary and within the uterine cavity would have puzzled radiologists and detailed urological examinations would certainly have been carried out to exclude? stone formation in that tract. Unfortunately, that was not done. Perhaps we should employ the use of preliminary X-rays of the pelvis in gynaecological cases more than we are doing at present.

Fig. 3 shows a calcified body, not an isolated calcified fibromyoma, of a uterus in a case of a woman, Mrs. M., aged 59 years. She was referred to me on 26 April 1944, suffering from low backache of many years' standing and a constant heavy, bearing down feeling. On vaginal examination I was struck by the excessive hardness of the body of the uterus. It moved with the very atrophic vaginal cervix and caused great abdominal

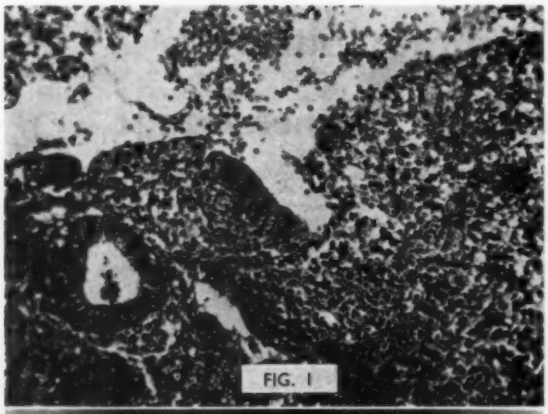
FIG. 1

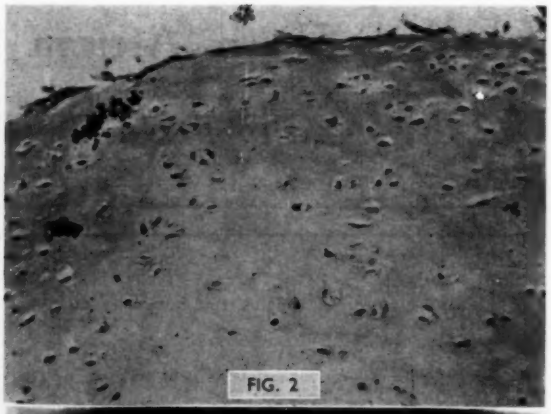
FIG. 2

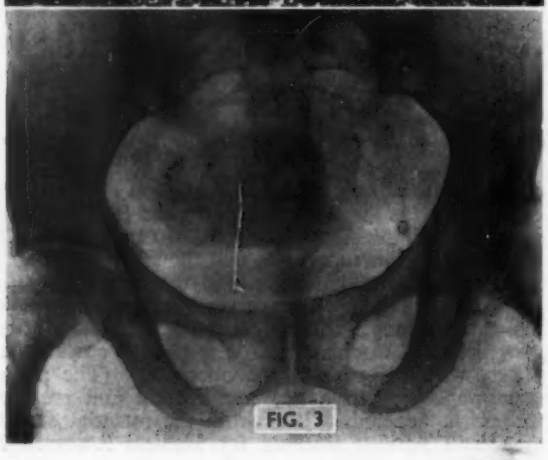
FIG. 3

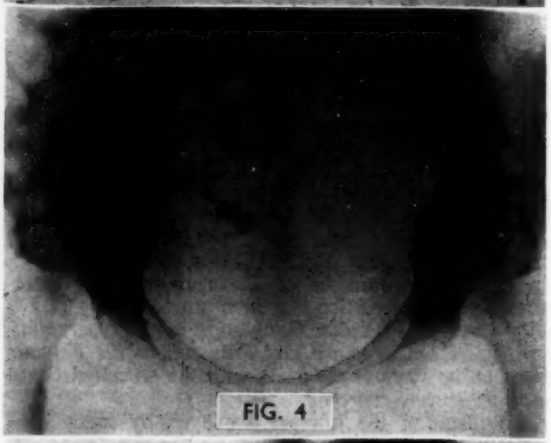
FIG. 4

FIG. 5

discomfort. I had no hesitation in having a roentgen plate taken in her case. The radiologist reported that there was a ? calcified fibromyoma of the uterus.

She had had one full time pregnancy years before and again an abortion after which she had no further pregnancies and much menstrual discomfort, with excessive loss until her climacteric was established at the age of 50 years. An operation by me on 27 April 1944 revealed the true state of affairs. It was a very simple matter to remove a completely ? osseous body of the uterus from an atropic supravaginal cervix. The tubes and ovaries were very atrophic, but there was nothing else abnormal about them. The appendix was fibrotic and its tip was pelvic in presentation. There was no evidence that intra-abdominal infection had played a part in the state of the uterus. I believe post-abortal effects were responsible for the changes. No microscopic examination of the specimen was undertaken, so it is impossible to say whether calcification had gone a stage further to ossification in this case.

Figs. 4 and 5 are added to this report by way of contrast. They show the presence of aberrant germ layer, bone formation in the female pelvis of a young

woman, Miss B., aged 23 years, operated on by me on 14 November 1944. The lateral view (Fig. 5) shows the outline of a quite considerable dermoid cyst.

Summary. A case of heterotopic bone formation in the cavity of a uterus is reported, with the addition of a few notes and roentgen plates depicting aberrant bone and near-bone formation in the female pelvic cavity.

It is suggested that gynaecologists should perhaps employ the services of radiologists more frequently than at present.

My sincere thanks are due to Messrs. McManus and Hall of the Departments of Surgery and Physiology, University of Cape Town Medical School, for the excellent photographs of roentgen plates and photomicrographs of the sections prepared for me by the South African Institute for Medical Research, Johannesburg.

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2. Fleming (1949): Excerpta Medica, X, **2**, 353.
3. Solomons, E. (1950): Excerpta Medica, X, **3**, 48.
4. De Villiers, D. P. (1950): S. Af. Med. J., **24**, 33.

HAARNAALD IN DIE BLAAS

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Die aanwesigheid van 'n haarnaald in die blaas van 'n vyfjarige meisie skyn die moeite werd te wees om te rapporteer.

Op 6 Junie 1949 is die dogtertjie in die Krugersdorpse Hospitaal opgeneem. Die medikus het, na 'n ondersoek, tot die gevolgtrekking gekom dat sy aan ontsteking van die niere ly.

Sy het M en B pille gekry vir 'n tydperk van 'n week, dog het geen vordering gemaak nie. Sy is toe na 'n uroloog gestuur vir verdere ondersoek.

Tydens die ondersoek was die kind uitgeteer met 'n droë tong en weggesinkte oë. Sy het 'n hoë koors gehad en dikwels aanvalle van koue koors gekry. Haar urine was baie vuil, vol etter en basilli saam met rooi bloedselle. 'n X-straalondersoek van die maag het gewys dat daar 'n groot haarnaald in die blaas was (Fig. 1) en dat 'n blaassteen om die vreemde voorwerp gevorm het. 'n I.V.P. het gewys dat die linkernier uitgeset was en die indruk was geskep dat die punte van die haarnaald in die omgewing van die opening van die ureter in die blaas ingesluit was.

Die toestand van die kind was so sleg dat die M en B gestaak is en met Crystocillin-inspuitings begin was. Hierna het die kind baie goeie vordering gemaak. Na 'n paar dae was besluit om op haar te opereer.

Na verdere ondervraging het die meisie beweer dat sy die haarnaald in haar bed gevind het en het tot die gevolgtrekking gekom dat dit van haar liggaam afkomstig was, en weer daarin behoort geplaas te word, wat sy dan gedoen het.

Onder algemene narkose is die blaas oopgemaak deur 'n suprapubiese kystotomie. Met 'n vinger in die blaas kon die haarnaald en die blaassteen gevoel word. Die steen is met 'n ovum-tang deur die suprapubiese wond verwyder. 'n Vinger is weer in die blaas gesteek om seker te maak dat 'n stuk van die steen nie afgebreek en in die blaas agtergebly het nie, en daarna is die wond in die blaas met katderm toegewerk.

'n Lengte Gummidam is in die cavum Retzii geplaas en die wond met aparte steke toegewerk. 'n No. 14 selfinhoudende kateter is in die blaas deur die uretra gesit en daar gelaat. Die urine het goed deur die kateter gedrip en die suprapubiese wond het droog gebly.

Na vyf dae is die kateter uitgetrek en die kind kon maklik water. Binne 'n week was die wond heeltemal genees en die steke is verwyder.

Die kind het besonder goed gevorder en kon op die tiende dag die hospitaal verlaat. Sy was heeltemal gesond. Die urine was mikroskopies skoon.

Ek wil ook hiermee my waardering uitspreek teenoor dr. Campbell Begg vir sy vriendelike toestemming vir die publikasie van hierdie artikel.

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EDITORIAL

DEFICIENCY DISEASES

The success which has crowned the efforts made in many countries to control diseases due to deficiencies of nutrients is extremely encouraging, so that it is possible to contemplate the general application of certain preventive measures. The case of goitre as well as of certain avitaminoses is particularly striking.

Endemic goitre. The world incidence of endemic goitre is not known. Scientific literature contains only fragmentary information on this subject. This disease, which is not found in districts where iodine is plentiful, is widespread in countries which are far from the sea and sea foods, as in high valleys in Europe, India and South America. Lack of iodine seems to be an essential factor in the etiology of this disease.

The most widely used prophylactic method is to iodize table salt. Potassium iodide, in amounts varying from 1 part in 10,000 to 1 part in 100,000, according to the country, is added to the crude salt during the refining process which transforms it into table salt. The treatment undergone by the salt makes it possible to fix the iodine in a stable form. The iodization of salt is compulsory in some countries and optional in many others, but numerous countries have taken no steps in this connexion. In many regions, and particularly in underdeveloped countries, the people consume salt in its crude form. It is difficult, however, to iodize crude salt in such a way as to produce a stable product. A technical procedure must, therefore, be found for incorporating iodine into crude salt, before the general application of this prophylactic method is contemplated.

Another difficulty arises from the fact that the crude salt used for consumption is produced by small local undertakings. Thus, even if an iodization process for salt were perfected, it would not be easy to supervise its application.

In order to collect information on the extent of the endemic goitre problem throughout the world, WHO

VAN DIE REDAKSIE

GEBREKSIEKTES

Die welslae waarmee die pogings bekroon is wat in baie lande aangewend is om siektes te beheer wat aan tekorte aan voedingstowwe te wyte is, is uiters bemoedigend sodat dit moontlik is om die algemene toepassing van sekere voorbehoedmaatreëls in die vooruitsig te stel. Die geval van skildkliergeswel asook sekere vitamiengebrekke is besonder treffend.

Endemiese Skildkliergeswel. Die wêreldvoorkomssyfer van endemiese skildkliergeswel is nie bekend nie. Wetenskaplike literatuur bevat slegs fragmentariese inligting oor hierdie onderwerp. Hierdie siekte wat nie in streke aangetref word waar jodium volop is nie, is wyd versprei in lande wat ver van die see en seevoedsels geleë is, soos in die geval van die hoë valleie van Europa, Indië en Suid-Amerika. Dit lyk of jodiumgebrek 'n essensiële faktor in die etiologie van hierdie siekte is.

Die algemeenste voorbehoedmetode is om tafelsout met jodium te behandel. Potassium-iodied, in hoeveelhede wat wissel van 1 deel op 10,000 tot 1 deel op 100,000, na gelang van die land, word gedurende die raffineringsproses wat onverwerkte sout in tafelsout omskep, by die onverwerkte sout gevoeg. Die verwerking van die sout maak dit moontlik om die jodium in 'n stabiele vorm vas te lê. In sommige lande is die behandeling van sout met jodium verpligtend, in baie ander geskied dit na keuse maar in baie lande is niks in dié verband gedoen nie. In baie streke, en veral in agterlike lande, word sout in onverwerkte vorm geëet. Dit is egter moeilik om onverwerkte sout op so 'n wyse met jodium te behandel dat 'n stabiele produk verkry word. Voordat die algemene toepassing van hierdie voorbehoedmetode beoog kan word, moet 'n tegniese metode dus gevind word waarvolgens jodium in onverwerkte sout opgeneem word. 'n Ander hindernis spruit voort uit die feit dat die growwe sout deur klein plaaslike ondernemings vir verbruik geproduseer word. Selfs wanneer 'n proses vir die behandeling van sout met jodium dus tot volmaaktheid gebring is, sou dit nogtans nie maklik wees om toesig oor die toepassing daarvan te hou nie.

Ten einde inligting oor die probleem van endemiese

sent a circular letter to the governments of member States, inquiring about the incidence and distribution of this disease in their countries, the preventive measures in force, and the results obtained.[1] On the basis of the reports received, WHO intends to determine the distribution of goitre throughout the world, the part played by iodine in its prevention and the efficacy of the measures applied in the different countries.

Deficiency Diseases Associated with the Vitamin B Complex. Pellagra, the study of which was suggested by the First World Health Assembly, has been successfully controlled in many European and American countries by the administration of niacin (nicotinamide). Since the importance and the world distribution of this disease are only imperfectly known, WHO will collect all information likely to be of service, with a view to possible action at a later stage.

It has been reported that the addition of synthetic vitamins to rice, which was the subject of recent experiments in the Philippines, has considerably diminished the incidence of beri-beri. Similar trials have been made in the Far East. Although the enrichment of rice with synthetic vitamins may be very useful in areas where beri-beri is widespread, it is merely a palliative. The fact must be stressed that the success of these methods does not dispense with the need for improving diets based on rice.

While the origin of certain deficiency diseases is now well known, the cause of various other complaints which also seem due to nutritional deficiencies is still undefined. Particular attention has been paid to one of these diseases, viz. *kwashiorkor* (also known as malignant malnutrition, syndrome depigmentation-oedeme, etc.). This disorder, which is encountered in tropical and subtropical areas, is, as yet, a poorly defined syndrome, and causes very heavy infant mortality in certain countries. Important clinical contributions to its understanding have been made by Trowell[2] and by Gelfand.[3] In Africa and Central America, where this condition is widespread, adults who have suffered from the disease during childhood frequently show cirrhotic changes in the liver. The committee felt that WHO should undertake a study of this disease, including the investigation of the diets of the population, particularly of pregnant women and young children. Comparison with the diet of peoples free from the disease would perhaps make it possible to discover the causative factor.

Miscellaneous Conditions. The investigation of eye disorders due to faulty nutrition, as well as of certain blood dyscrasias (e.g. anaemia), which also appear to be of nutritional origin, will also probably figure in the future programmes of WHO.

1. Chron. World Hlth. Org. (1949): **3**, 267.
2. Trowell, H. C. (1944): *Malignant Malnutrition*, Clin. Proc., **3**, 381.
3. Gelfand, M. (1946): *Kwashiorkor*, Clin. Proc., **5**, 135.

skildkliergeswel oor die hele wêreld in te win, het WHO (die Wêreldgesondheidsorganisasie) 'n omsendbrief aan die regerings van alle ledestate gestuur waarin navraag gedoen word na die voorkomssyfer en die verspreiding van hierdie siekte in hulle lande, die voorbehoedmaatreëls wat in swang is en die uitslae wat verkry kan word.[1] Op grondslag van die verslae wat ontvang is, is WHO voornemens om te bepaal wat die verspreiding van skildkliergeswel ten opsigte van die hele wêreld is, wat die rol is wat deur jodium by die voorkoming daarvan gespeel word en hoe doeltreffend die maatreëls is wat in die verskillende lande getref word.

Gebreksiektes wat met die Vitamien B-kompleks in verband staan. Pellagra, die bestudering waarvan deur die Eerste Wêreldgesondheidvergadering aan die hand gedoen is, is in baie Europese en Amerikaanse lande met sukses beheer deur die toediening van niasien (nikotienamied). Aangesien die inligting oor die belangrikheid en die verspreiding van hierdie siekte oor de wêreld onvolledig is, sal WHO inligting versamel wat moontlik tot nut sal wees met die oog op optrede by 'n later stadium.

Daar is verslag gedoen dat die toevoeging van sintetiese vitamiene tot rys, wat die onderwerp van onlangse proefnemings in die Fillipyne was, die voorkomssyfer van beri-beri aansienlik verlaag het. Soortgelyke proefnemings is in die Verre Ooste gedoen. Alhoewel die verryking van rys met sintetiese vitamiene nuttig mag wees waar beri-beri dikwels voorkom, is die uitwerking bloot verligtend. Dit moet beklemtoon word dat die sukses van hierdie metodes nie wegdoen met die behoefte om diëte wat op rys gegrond is, te verbeter nie.

Alhoewel die oorsprong van sekere gebreksiektes nou goed bekend is, is die oorsaak van verskeie ander kwale wat skynbaar ook aan voedingsgebreke te wyte is, nog nie bepaal nie. Besondere aandag is aan een van hierdie siektes geskenk, nl. kwasjiorkor (ook bekend as kwaadaardige ondervoeding, sindroom depigmentasie-edeem, ens.). Hierdie kwaal wat in tropiese en subtropiese streke aangetref word, is tot dusver 'n sindroom wat swak omskryf is en dit veroorsaak 'n uiters hoë kindersterftesyfer in sommige lande. Belangrike kliniese bydraes tot 'n begrip daarvan is deur Trowell[2] en Gelfand[3] gedoen. In Afrika en Sentraal-Amerika waar hierdie siekte wyd versprei is, vertoon volwassenes wat in hulle jeug aan die siekte gely het, dikwels sirrotiese veranderings in die lewer. Die Komitee het gemeen dat WHO 'n ondersoek van hierdie siekte moet onderneem, met inbegrip van 'n ondersoek van die bevolkingsdiëte, veral van swanger vroue en jong kinders. 'n Vergelyking met die dieet van die volke wat nie aan die siekte onderhewig is nie, sal miskien die ontdekking van die oorsaak moontlik maak.

Diverse Toestande. Die ondersoek van oogkwale wat te wyte is aan verkeerde voeding asook van sekere bloedkwale (bv. bloedarmoede) wat skynbaar ook 'n voedingsoorsprong het, sal waarskynlik ook in die toekoms in skemas van WHO voorkom.

1. Chron. World Hlth. Org. (1949): **3**, 267.
2. Trowell, H. C. (1944): *Malignant Malnutrition*, Clin. Proc., **3**, 381.
3. Gelfand, M. (1946): *Kwashiorkor*, Clin. Proc., **5**, 135.

MEDICO-LEGAL SECTION*

'UNDER THE INFLUENCE OF NARCOTIC DRUGS'

HYPOGLYCAEMIA : TOXAEMIA : DEBILITY : EXHAUSTION : ANXIETY

IN THE SUPREME COURT OF SOUTH AFRICA

(CAPE OF GOOD HOPE PROVINCIAL DIVISION)

Cape Town, 27 April 1950

REX *VERSUS* DR. PATRICK DOUGLAS-HENRY

Newton-Thompson, J.: In this matter the accused was charged with the offence of contravening Section 48 (1) (B) of Ordinance 15 of 1938 in that upon or about 19 July 1949, and upon a public road called Adderley Street, Cape Town, in the district of the Cape, the accused, being the driver or having charge of a motor vehicle, to wit, Motor Car No. C.A. 57759 was wrongfully and unlawfully under the influence of narcotic drugs.

A magistrate of Cape Town having heard evidence and argument found the accused guilty of the crime charged and fined him £25 and, in accordance with law, suspended his driver's licence for six months. Appeal was brought to this Court on grounds which are set out in the record but which can be summarized as:—

1. That the Crown failed to discharge the onus of proving beyond a reasonable doubt that the accused was under the influence of narcotic drugs as alleged in the indictment.

2. That the evidence of the expert witness, Dr. Turner, was inadmissable in the circumstances in which, and in the manner in which it was given.

I propose to deal with the first ground first.

The accused is an M.D. and D.Sc. of the University of California. He is at present doing research work for a thesis in psychiatry, but he does not practice here. He has been an M.D. for 20 years. He is married to Dorothea Mary Scott Douglas-Henry. She is an M.B., Ch.B., of the University of Cape Town, where she took her degree in 1936 and has since been in active general medical practice which embraces the whole of the Cape Peninsula and she holds part-time appointments with the City Health Department and the Cape Divisional Council, and is in charge of various clinics.

On 16 July 1949, the accused underwent a surgical operation on a large abscess at the back of the left shoulder. The abscess was deep and it drained extensively for a week. It was dressed five or six times in each 24 hours of the two days following the operation. The accused was taken home two hours after the operation and was put to bed where he stayed until 19 July 1949. He says that on 16 and 17 July he felt exhausted and suffered from pain and vomiting and could not face eating solids. On the evening of 18 July 1949, he was in great pain and unable to sleep. At 7 p.m. he was given three grains of sodium seconal. At 10 p.m. on the same night he was given 3 grains of amytal and between midnight and 1 a.m., 2 grains of phenobarbitone, all designed to induce sleep, not to relieve pain. The accused says he rose about 6.30 a.m. on 19 July, shaved himself with a cut-throat razor and dressed.

He says he felt perfectly normal except for weakness, and had a cup of tea. Later in the morning he accompanied his wife from Simonstown towards Cape Town in their motor car, she driving. She dropped him at Woodstock at about 9.15 a.m. and met him by arrangement at 11 a.m. Between 9.15 a.m. and 11 a.m. he says he wrote two letters, had a cup of coffee and walked for about 10 minutes to meet his wife as arranged. After meeting her he took over the car and drove his wife a distance of half a mile along the Main Road, a busy thoroughfare, after which he dropped her. She testifies that both on the way in from Simonstown and as the driver of the car at this stage, her husband conversed normally, and his driving was normal through fairly heavy traffic.

Now it may be said that her evidence is biassed. She is the accused's wife and the assumption that the evidence may be biassed is a natural one, but it does not follow that though it may lean in favour of the accused her evidence is not true. She is a medical woman practising as a doctor, with a considerable practice. She testifies, in her evidence, that she has had considerable experience of drugs and it is obvious that she would probably have noticed any ill effects from them on her husband while he was driving a half mile along a busy road, but she was satisfied that he was normal.

Now there is a strong probability, it seems to me, that she is speaking the truth, because she would, as a medical woman, quite apart from her solicitude as a wife, know that it would be dangerous for her husband to drive a motor car, if he was under the influence of narcotic drugs, so that her very action in handing over to him and leaving him to drive is, to my mind, proof that, she, at any rate, was confident that at the time when she handed the car over to him he was in a perfectly suitable condition to drive a car. Now the accused, after dropping his wife, proceeded towards Cape Town and he says that he began to feel a slight giddiness, but, feeling that it would wear off, he continued to drive towards Adderley Street where he stopped the car. It is what happened about this stage that gives rise to this case.

A about 11.30 a.m., van Schalkwyk, a traffic constable, noticed a small Fiat car with accused in it,

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standing in Adderley Street facing towards the mountain. He says that accused seemed to him to be asleep. His movements were slow and he looked ill. He was slumped over the wheel and he moved the car back instead of forward and put the gear into reverse. Van Schalkwyk called Constable Smit who asked the accused to get out of the car. He said he was unable to do so without help, nor was he able to walk by himself.

I may interject here that this was a small Fiat car and many persons not under the influence of narcotic drugs find it difficult to get out of these small cars; among them I include myself.

Smit says, that in answer to his question of what was wrong, accused replied 'I am damn drunk'. Accused was looking ill and Smit took him in the van to the charge office where the Asistant District Surgeon, Dr. Pillemer, examined him. Sergeant van Rensburg, who also saw the accused, says that the accused couldn't walk or stand. He looked ill. Dr. Pillemer, in this case, commenced his examination of the accused at about 11.35 a.m. He found him sleepy and drowsy with a marked stagger. He says that accused could not stand on his feet; that his reaction to the Romberg test was bad; he was inclined to fall back. He was very unsteady and his knee jerks were exaggerated. He says the result of the test in the accused's case was unsatisfactory, although he conceded that he does not remember what tests he put to the accused. Then he says there was nothing abnormal about accused's speech. He spoke rationally and repeated everything he was asked to say. He conversed sensibly and he knew quite well what was going on. He says the accused had an injury, a bruise, on the right side of the chin. (The accused stated that he had a fall that morning.)

Dr. Pillemer refers to the dressing on the left shoulder at the back covering an abscess and he says that accused told him that he had taken drugs the previous evening and that morning at 1 o'clock for the abscess. The accused told him he had had no alcohol in the last 24 hours. The drugs he took were sedative hypnotic or narcotic drugs and his opinion was that the accused was under the influence of a narcotic drug and not in a fit state to drive a motor vehicle, and he took a specimen of his urine and handed it to Dr. Turner.

Under cross-examination, Dr. Pillemer conceded that the fact that accused's balance was impaired might happen to a man who was ill. He conceded that the accused's medical history could result in toxaemia and he said that toxic effects may show for several days after the operation. He stated that the normal dose for the barbiturate drugs was 1½ grains, and according to him a normal person would have been fast asleep for at least 12 to 18 hours with these 6 grains. Actually the accused had taken 8 grains the previous night; and Dr. Pillemer says elsewhere in his evidence, that if the accused was a normal person, part of the 8 grains of the narcotic would still be in his system the following morning, but one would expect the effects to be wearing off. Dr. Pillemer says that in hypoglycaemia one can get symptoms which are common to the condition in which the accused was. He says no tests for this were carried out.

It was proved in this case that there were found to be barbiturates in the urine of the accused. Dr. Pillemer stated that the fact that barbiturates are found in the urine was not evidence that the accused was under the influence of them. Dr. Pillemer's conclusion was that the accused was under the influence of drugs aggravated by little to eat and toxaemia, and he stated that he was still of that opinion. In another part of the evidence he stated this in spite of Dr. Brock's opinion to the contrary and he was still of that opinion, that the accused was under the influence of barbiturates.

Then he has stated that, if the drugs which the accused had taken the previous night had been correctly stated, in his opinion, he was still under their influence at that time, about noon, and later, even up to 4.30 p.m. that day.

Dr. Turner, Government Pathologist, gave evidence. He had not examined the accused at all or seen him at any time for examination purposes. Dr. Turner's evidence was objected to as not being admissible. I will deal with that separately. For the moment I will assume it is admissible. The method adopted was to read out—despite the objection by the attorney for the accused—to read out the findings of Dr. Pillemer as recorded in the evidence, and by that I take it that the magistrate meant the findings after the examination. He states that these findings were read out except for certain conclusions which could conveniently be left out and except for certain evidence given in Dr. Turner's presence.

Now, as a Court of Appeal, we do not know what conclusions could conveniently be left out, and we do not know what portions of Dr. Pillemer's evidence could be excluded as 'the latter portion of his evidence'. Dr. Turner stated that, in his opinion, the accused was under the influence of narcotic drugs. He thought that toxæmia could have played only a minor part and he thought that the accused might have had moderate hypoglycæmia, but on the whole he did not favour that view.

Now, it was put to Dr. Turner the details of the narcotic drugs, amounting to 8 grains in all, which the accused himself stated that he had taken during the night before, and between midnight and 1 a.m. on 19 July. Dr. Turner's opinion as to those, that is, the 8 grains in all, was that the accused might have shown after-effects 12 hours later, but after six hours the effects would be very slight, and, continuing his evidence, he said that the effect of those drugs would have been over by 11 a.m. Therefore, Dr. Turner said, those drugs *could not have accounted* for the condition of the accused when he was seen by the District Surgeon. He continues that the drugs the accused stated he took and 'at the times he took them would not account for his clinical picture of being markedly under the influence about noon, and there is no other condition to account for it, so the conclusion is the accused took further narcotic drugs later that morning'. Then he generalizes a little and goes on to say: 'People may take a dose of narcotic drugs and lose recollection of having taken it owing to the effect of the drug'; so that, in his opinion, the condition of the accused was

due to his taking drugs that morning and he *did not consider at all* that the accused's *condition could have been caused* by the drugs taken the previous night; admittedly taken the previous night.

After the Crown case had been concluded, at a time when Dr. Turner could only have expected his evidence was finished with once and for all, he was recalled by the Court. The defence evidence had been going for some time, and he said:

'I have been thinking over this matter further and I now say that it is most unlikely but not impossible that *all* (my underlining) the symptoms the accused is stated to have shown upon and after his arrest, and until he left the District Surgeon that afternoon, could be consistent with his last dose of drugs being at 1 a.m., because we are not dealing with a normal man.'

Now it seems to me very surprising that Dr. Turner who is an expert, and who knew the medical history of the accused in this matter, should not have stated when he first gave evidence that it was possible that the symptoms which the accused is stated to have revealed by Dr. Pillemer could have been shown as a result of the drugs taken the night before. He disregarded that possibility when he gave his evidence the first time and I am very surprised that only after thinking it over, after the Crown case was closed, he should think it was possible.

Now the magistrate, in his *findings* of fact specifically said that the accused took a further narcotic drug or drugs of the barbiturates group that morning, that is, 19 July, and was under *its* influence at the time he was in Adderley Street at 11.30 a.m. In other words the magistrate's finding is that it was the narcotic drug taken during the morning of 19 July which caused the accused's condition at 11.30 a.m. He states that it is possible that the accused took these further doses of drugs secretly without telling his wife, but he is under the impression that she knew he had had more drugs and she resolved to hoodwink the Court with all her talk of hypoglycaemia, toxaemia, exhaustion, debility and anxiety. As to the last statement of the magistrate, it is difficult for me, after a close perusal of the evidence, to see how the magistrate could deduce that the accused's wife knew that he had had more drugs than those mentioned in the evidence. There is nothing which I can discover to justify that statement. However that may be, it is obvious that for a consideration of this case it becomes essential to determine whether the magistrate's finding of fact that the accused took a further drug on the morning of 19 July, was justified on the evidence before him. If he was justified in that finding, then, coupled with the other evidence, he is justified in finding accused guilty.

The first point to notice in considering that finding is that it can only be based upon the evidence of Dr. Turner—based on Dr. Pillemer's findings—and as I have indicated above, on the evidence he gave during the *Crown* case it seems to me that it would be very difficult or very dangerous for the magistrate to find as a fact, on the evidence of Dr. Turner, that the accused must have taken more drugs during that morning on what another medical man had observed at 11.30 a.m. Be that as it may, and supposing it be said that Dr. Turner's emphatic evidence during the Crown case justifies that, what is the effect of Dr. Turner's qualifications when the magistrate recalled him? He said that he had been thinking over the matter further and he then said that accused's condition, in view of all the circumstances, could be consistent with the last dose of drugs taken by accused being at 1 a.m. that day; that is to say, in accordance with his own testimony. Now, that in effect deletes Dr. Turner's evidence that accused's condition at 11.30 a.m. *must* have been caused by drugs taken by him during the course of the morning. The magistrate seems to have disregarded the fact that Dr. Turner qualified his first evidence and he relied on Turner's first evidence to make a most serious finding of fact against the accused.

Now I have difficulty in accepting the magistrate's finding of that fact, an absolutely vital finding for his verdict, in my opinion. It was quite unnecessary for him to make that finding because the charge was that accused was suffering from the influence of drugs at 11.30 a.m. However, the magistrate himself evidently feels, taking into consideration his judgment as a whole, that unless something like a taking of drugs during that morning was postulated, the conclusion could not be arrived at that the accused was suffering from the influence of drugs at 11.30 a.m.

I proceed to consider the other evidence before me to check this finding of the magistrate that the accused took further drugs during the morning of 19 July and that he was under the influence of those drugs when he was stopped in Adderley Street at 11.30 a.m. Now the accused's evidence is to this effect; in clear terms he says: 'I took no drugs during that morning.' Now it may be said that the accused is the accused in this matter, and that the Court cannot rely upon his evidence. The Court must sift his evidence carefully, but, after all, he is a well-educated man and he stated emphatically that he took no drugs that morning, and that cannot be entirely disregarded, especially when it is remembered that he had volunteered that he took barbiturates to enable him to sleep the night before.

Furthermore, in the evidence it appears that Dr. Pillemer searched him at 11.30 a.m. and found no drugs upon him. There is the evidence of the accused's wife, and it must be remembered that she is a trained and qualified medical practitioner who has had considerable experience of the effects of narcotic drugs; she says that on the morning of 19 July the accused was a bit weak but otherwise quite all right. She says also, that he was all right when he drove the car at about 11 a.m. At 2 p.m. on 19 July she phoned Dr. Pillemer and told him the names of the drugs she had given the accused on the night before, and Dr. Pillemer replied that her husband had said so also. Both the wife and the accused had given the same account of what drugs the accused had taken, without their having been in collaboration with each other, after the wife knew that the accused had been taken in charge. She says that she does not think that accused took further drugs that morning and she says he never does and never would during day-time and, in her own words 'from my observation of him I don't think he did'. She says he would have been practically asleep and wouldn't have been able to converse rationally and sensibly, if

he had taken additional drugs at 11 o'clock. He would be unlikely to take drugs secretly seeing that they had no effect on the pain.

In addition to that we have the specific evidence of the accused, in contradiction to the evidence of Dr. Turner, which was watered down. The probability is that when the accused drove his wife towards town on 19 July he showed no effects of the use of narcotic drugs. She would not allow him to take any drugs in the car and when he drove the car at 11 a.m. he was all right. She states he was all right. No doubt, the last thing he wanted to do was to go to sleep when he was driving. His wife states that his driving showed no effect of drugs and that there was no reason at all why he should take these drugs.

It seems to me that the conclusion that the accused took a narcotic drug on the morning of 19 July is not only improbable and unlikely but that it is an unjustified conclusion on the evidence in this record. Now then, the question arises, when the magistrate has come to such a fundamentally wrong conclusion on a question of fact, whether this Court should proceed to deal with the record on the basis that that wrong conclusion is eliminated, and decide for itself whether accused was under the influence of narcotic drugs at 11.30 a.m.

One must bear in mind that the magistrate, in his own mind, felt that this was a necessary conclusion to arrive at before the accused could have been under the influence of drugs, and in the face of Dr. Turner's evidence, and that of the wife who said that the effects of the drugs taken the night before would have been wiped out by 11 a.m., and also the evidence of accused's co-ordination and general normal conduct in driving the car up to 11.30 a.m. All these facts evidently made it difficult for the magistrate to find that he was under the influence of drugs unless there was the possibility of his having taken further drugs during the morning of 19 July. To my mind it does not necessarily follow that, if the magistrate had decided that no barbiturates had been taken on the morning of 19 July, as I think he ought to have on the evidence before him, that at 11.30 a.m. the accused was not under the influence of drugs.

Now, of course, on the evidence of the traffic constable, the constable of police, the sergeant and Dr. Pillemer, it may well be that the evidence given by them as opposed to that given by the accused and his wife might have justified the conclusion that accused was under the influence of narcotic drugs. The evidence of the three laymen and Dr. Pillemer is certainly strong, if the accused was in a normal state. But was he? His wife, a medical practitioner, suggests that his condition was due to toxaemia, and hypoglycaemia plus exhaustion and debility and anxiety and lack of food.

It is obvious from the evidence that he had not had much food in the previous two days. He would be anxious and debilitated and would show some signs of exhaustion. As to the toxaemia and hypoglycaemia, both Dr. Pillemer and Dr. Turner conceded them as possible, although they do not think they were present in this case.

Now with that history, that conflict of medical evidence, it seems to me that it is very difficult to say what did cause the accused's condition; whether it may have been a combination of the other factors and the drugs which he had taken the night before, the 8 grains he admits. Personally, if I was hazarding a guess, I think it may have been partly the delayed effect of the drugs on him; even laymen have experience of this. One's own experience tells one that delayed action may occur. However, it is very difficult to say to what degree the narcotics did affect the accused. It is uncertain to my mind what degree of effect they had. Assuming that he only took the drugs which his wife says he took the night before, and I am dealing with this case on that basis, which is the basis the evidence justifies, to my mind it does not seem that there is any moral obliquity in what the accused did. It may have been a mistake in that in his debilitated condition he should not have driven at all, but I do not think even now that he could know that they would necessarily affect him.

Now our Law is to this effect in a criminal case: I refer to *Rex* against *Nel* C.P.D. 1937 at page 327, a judgment of the late DAVIS, J., who was later an Acting Judge of Appeal. The case contains this statement at page 330: 'It cannot too often be repeated that in a criminal case the question is not whether the evidence is consistent with the prisoner's guilt but whether it is wholly inconsistent with his possible innocence.'

Now here it may well be that accused was affected to some small extent at 11.30 a.m. by the drugs which he had taken the night before, and I am inclined to think that he was. In the case of *Rex* versus *Blom* 1939 A.D. 188 at page 202, the present CHIEF JUSTICE said: 'In reasoning by inference there are two cardinal rules of logic which cannot be ignored:—

(1) The inference sought to be drawn must be consistent with all the proved facts. If it is not the inference cannot be drawn.

(2) The proved facts should be such that they exclude every reasonable inference from them save the one sought to be drawn. If they do not exclude other reasonable inferences then there must be a doubt whether the inference sought to be drawn is correct.'

Now it seems to me here that it would be quite permissible on the evidence of Dr. Pillemer and the three laymen to draw the inference that the accused was affected at 11.30 a.m. by the narcotic drugs that he had taken the night before. But it does not seem to me, in the circumstances here, that it would be permissible to draw that as the only inference. It may be that it was a combination of various factors. For instance it may have been partly narcotic drugs, partly exhaustion, partly debility, partly anxiety, partly hypoglycaemia and partly lack of food; I think it was probably all of those in some measure. The evidence is divided as to whether it was partly due to all these causes. It seems to me all those six, and his toxaemia, making seven possible causes, all *may* have had something to do with it.

There is not enough evidence on which I would be justified in saying that at 11.30 a.m. the effect of the drug taken the night before was such that it *appreciably impaired* the accused's capacity to drive a car in an ordinary and reasonable way. Seeing that it is impos-

sible for me to say that and having regard to the cardinal rule that in a criminal charge the accused must always be given the benefit of a reasonable doubt, I give him that benefit, and I think the magistrate's judgment should be over-ruled.

Before concluding I want to mention the objection to the admissibility of Dr. Turner's evidence. There is considerable criticism which can be levelled at the manner in which it was led in this case, but as it was under dispute as to whether it was admissible or not in the form in which it was given, I do not intend to decide the matter as it is unnecessary to do so.

The conviction and sentence are set aside.

The appeal is allowed.

Searle, J.: I concur.

THE TEACHING OF ANAESTHESIA TO INTERNS*

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During the last four years I have been concerned with the instruction of anæsthesia to interns at King Edward VIII Hospital, Durban, and Grey's Hospital, Pietermaritzburg. The graduates have come from the three teaching schools in the Union, usually within one month of qualification.

The teaching of anæsthesia to medical students is never very considerable, and the subject is very infrequently asked in the final examinations. The result is that students are apt to pay little attention to the practical side of anæsthesia and on the theoretical side they avoid any further reading in the small hours. The medical student who purchases a textbook on anæsthesia is rare. The practical instruction students receive will obviously vary with the ability of the teacher and the aptitude of the student to learn, but however good both these factors may be, it is not until the student graduates and finds himself fully responsible for the care of an anæsthetized patient, with all the unpleasantness of a magistrate's court in case of an accident, that he begins to realize the importance of the subject.

I am informed that at the three teaching hospitals in the Union, the student is required to give 20 anæsthetics under supervision, and that all these anæsthetics are supposed to be given by open mask. From what these interns tell me, this appears to vary very considerably, and other more complicated and advanced methods of anæsthesia are apparently shown and taught to students. The idea in the student's mind is the necessity of getting 'signed up for his dopes', irrespective of what is given, but the more modern methods of anæsthesia are apt to stick in his mind if he has given or seen them given under instruction, and the open method appears old-fashioned and out-of-date. This very unfortunate state of affairs occurs all too often, and while the student is bound to see modern methods of anæsthesia given, it should be very firmly stressed that the open method is by far the safest for the beginner and the 20 cases he is required to give should all be by this method. The high mortality which occurs under intravenous anæsthesia given by inexperienced anæsthetists would be considerably reduced if more attention was paid to the safer open method of anæsthesia.

SYSTEM OF ANAESTHETIC TEACHING GIVEN TO INTERNS

1. *Open Anæsthesia.* On arrival at Grey's Hospital all interns are required to give 12 anæsthetics under supervision, all of which are by open mask with ethyl chloride used for induction and ether for maintenance. They are then required to give such an anæsthetic with an honorary anæsthetist present, who allows them to give open anæsthetics without supervision from then on, if he considers them competent. At this stage the properties of di-ethyl ether and ethyl chloride are explained, especially the danger of pushing ethyl chloride in the presence of laryngeal spasm. The use of this drug is forbidden in children under one year, ether being used for induction as well as maintenance.

Open chloroform, either for induction or maintenance, was not taught until a visit was paid to the hospital by Dr. C. J. Albertyn, who is the Inspector of Interns in the Union and who stated that he was anxious for the intern to see chloroform administered, as it was quite possible that a young doctor might have to give an anæsthetic in a farm house with a candle as the only form of illumination.

I do not agree that this situation is very likely to occur, but in order to comply with Dr. Albertyn's wishes, I was most fortunate in securing the assistance of a general practitioner with a vast experience of chloroform. One demonstration has already been given for a difficult hysterectomy which lasted for over two hours, and pure chloroform was used both for induction and maintenance. I had never seen this agent used,

* Any system of practical anaesthetic teaching should allow the student firstly to observe and question his teacher, secondly to administer anaesthetics while under his supervision and then to administer anaesthetics without supervision. The most important factor of all, however, is that after the student has administered anaesthetics on his own, he should have the facilities for returning to his original teacher and to be able to discuss with him his difficulties in the light of the experience he has acquired.

The present situation with regard to the status of the intern is at the moment in a state of flux. A recent Editorial in the *Journal* (22 April 1950) has shown the unfortunate state of affairs that may exist regarding the legal position of the intern in administering anaesthetics without supervision. As no definite ruling on this matter has yet been received, the interns under my supervision are treated as having the full responsibility of a fully qualified medical practitioner. If subsequent events show that the intern is not permitted to assume this responsibility, not only will he become quite useless to the organization of a hospital (and in this view I have the whole-hearted support of the medical superintendent) but on the termination of his internship he will still lack the sense of responsibility which can only be acquired when no higher authority is at hand to whom he can turn for help.

except for induction in combination with ether, and I was most impressed by the demonstration which was highly successful. I do not think, however, that the use of this agent should be encouraged in view of the efficient transport services available in the Union to-day.

2. *Intravenous Anæsthesia.* The first essential of intravenous anæsthesia, however obvious it may seem, is the ability to insert a needle into a vein. The lack of this ability is most apparent where interns are concerned. They appear to have not the faintest idea of the basic essentials of intravenous technique, such as a good light, anchoring the movable vein, testing the needle for patency and the feel and direction of a deep vein which is not visible. I consider that the teaching of this most essential procedure should not have to rest with the anæsthetists, but should be taught early on in their medical career, the best opportunity being a Venereal Diseases clinic. It may well be, of course, that this inability to enter a vein has been the salvation of some patient, when the intern has had to resort to the open mask.

The dangers of intra-arterial injection of the ultra-short-acting barbiturates are taught, and the choice of a vein away from the ulnar side of the ante-cubital fossa advised. The treatment of the inadvertent extra-venous injection by the use of 1% procaine is stressed.

All forms of intravenous anæsthesia by the ultra-short-acting barbiturates have now come to be known as 'Pentothal anæsthesia'. This drug, which was first introduced by Lundy in America in 1936, has the formula of sodium ethyl (1 methyl butyl) thio-barbiturate. Soluble Thiopentone (Boots) and Intraval Sodium (May & Baker), have an identical formula using sodium bicardonate as a buffer. Strange ampoules with different names will always worry an intern and he is told that Soluble Thiopentone and Intraval Sodium are chemically identical with Pentothal. Kemithal Sodium (I.C.I., or A.E. and C.I. in the Union) is also shown, and it is explained that this drug is approximately half as potent as all forms of Soluble Thiopentone. The only ampoules of Kemithal that are used are the 2-gramme ampoules, which are supplied with ampoules 20 c.c. of distilled water, so that the resultant 10% solution of Kemithal is approximately equal to the 5% solution of Pentothal.

The 5% solution of Pentothal or its equivalent is always used, as I feel that it is less confusing to use a solution of constant strength. There are many protagonists for the 2½% solution, which is almost routine in America, but in shocked cases I stress the dangers of using the drug, and explain that if it is used, a very small dose and a very slow rate of injection must be given. The use of Pentothal for minor cases of short duration, its use continuously with nitrous oxide for longer cases requiring little or no relaxation, and its use as an induction agent prior to a nitrous oxide, oxygen and ether sequence are shown. The dangers of the drug when used for the very old, the very young, as well as the very shocked are stressed, and most important of all its absolute contra-indication in respiratory obstruction.

With regard to the very young patient, I think that it might be of some value to mention the case of a healthy child of six years whom I was asked to anaesthetize a short time ago. This child weighed 55 lb., and as there was a suitable vein, I induced anaesthesia with 5 c.c. of a 5% solution of Pentothal. A pharyngeal airway was inserted and the mask applied to the face. The bag was filled with oxygen, and after one minute of apnoea the child was easily inflated. As the surgeon was by then nearly ready to begin the operation, I thought that the introduction of a little ether might stimulate the child into some form of respiratory reaction. To my surprise, when I inflated the child with a fair amount of ether vapour in the bag, no respiratory response was observed and the child was again very easily inflated. The pulse and colour were excellent. On examination of the pupils, however, they were found to be widely dilated and completely inactive to light. The ether was at once turned off, the bag emptied and filled with oxygen. The surgeon was told to start, and completed a simple appendicectomy in 20 minutes. Throughout the operation, manual compression of the breathing bag was required, as the child had not taken a breath from the time of induction. Having continued this artificial respiration for half an hour after the operation had finished, with no sign whatever of spontaneous respiration or of constriction of the pupils, I was beginning to get somewhat worried, although the pulse and colour were still excellent. 1 c.c. of picrotoxin intravenously and 1 c.c. intramuscularly were injected at this stage. Fifteen minutes after this injection the faintest sign of respiration was observed. After a further 10 minutes respiration was obvious and considerable reduction in the size of the pupils had occurred. Fifteen minutes later the child had positive reflexes and adequate respiration and she was returned to the ward. Full consciousness returned after a further 10 minutes and an uninterrupted recovery made. This I consider to be an obvious case of sensitivity to Pentothal, and even though picrotoxin had been used earlier, which I think it should have been, death would almost certainly have occurred if artificial respiration had not been used throughout.

Before leaving intravenous anæsthesia, the difficulty of dealing with a case of acute intestinal obstruction by general anæsthesia, and the Bantu or Indian case brought into the theatre so often on a Saturday night, with a traumatic injury and a full stomach, are stressed.

I was very surprised to see the following statement in a recent issue of the *Journal*: 'When d. tubocurarine was first advocated for use in shocked emergencies, I began to use it as routine, but I have found, particularly in cases where the stomach is full of liquor, that the extreme relaxation of the cardiac sphincter of the stomach obtained in a matter of seconds with d. tubocurarine is a disadvantage. Before one has time to intubate and pack off the larynx, stomach contents have been regurgitated'[2] Vomiting in cases of acute intestinal obstruction as well as in cases that have full stomachs will occur as consciousness is lost with Pentothal, and I do not think that curare is to blame in the above-mentioned cases, and certainly not in a matter of seconds. The teaching at Oxford is that in all cases of acute intestinal obstruction a full-size stomach tube must be passed into the stomach before anæsthesia is started[3]. At King Edward VIII Hospital I made it an absolute rule in all emergency cases to pass a stomach tube, even in cases that I had been told had had nothing to eat or drink for some hours, or that had had a stomach wash-out in the ward. In one case, three pints of stomach wash-out came back through the tube. Curare is a very useful adjuvant in emergency cases, but its use makes it even more imperative to pass a full-size stomach tube.

3. *Anæsthetic Apparatus.* The only apparatus (apart from the Oxford inflator) that is taught is the open cir-

cuit Boyle's apparatus. The care of the apparatus, turning off cylinders after use, the use of 'Empty', 'Full' and 'In use' tags explained, as well as the function of reducing valves, cylinder pressures, etc. The difficulties that may be encountered after a Pentothal induction when ether is introduced into the circuit are pointed out, and the use of carbon dioxide by 'making the urge to breathe greater than the urge to cough'. The increased difficulty in doing this, when heavy respiratory depressant drugs for premedication have been used, is mentioned later. A lot of time is spent on the use of the apparatus to give artificial respiration with pure oxygen, and I lay great stress on the inflation of the apnoeic patient. Timely mention of this was made in a recent letter to the Editor of this *Journal*[4].

The patient who stops breathing causes the greatest worry to the intern, and he is told that at whatever stage apnoea occurs, his first move is to feel the pulse. If this is easily palpable and of good volume there is no cause for alarm. It is, however, his duty to discover at once whether the apnoea is due to respiratory obstruction or to respiratory arrest. He is instructed to see that there is an airtight fit between the mask and the patient's face and that the expiratory valve is closed. The bag is filled with oxygen and by manual compression of the breathing bag it can be seen at once whether the contents empty into the lungs, which can be observed by expansion of the chest, or whether it is impossible to empty the bag at all. He is deliberately shown both these situations, firstly, in a healthy adult by deliberately giving a big initial dose of Pentothal, and secondly, by firmly depressing the jaw and causing obstructed respiration.

If the intern finds that obstruction is present he is told to think of the jaw, tongue and larynx in that order. He is told that by holding up the jaw and by the use of an artificial airway, obstruction due to the jaw and the tongue can be eliminated, and he should turn his attention to the larynx. Emphasis is laid on the immediate treatment (which is not to rush for an endotracheal tube that most likely he is unable to pass) but to discover the cause of the laryngeal obstruction and remove it. Such causes as mucus, blood, vomit, ether vapour and too light anæsthesia for the surgical procedure, are pointed out, and he is told that respiration will return when the offending cause is removed.

If, on the other hand, the intern finds that the chest expands easily on manual compression of the bag, he is told that apnoea often occurs after a Pentothal induction and is usually of short duration. On the open circuit apparatus, all that is required is the periodic inflation of the lungs by manual compression of the bag in time with his own respirations, and the periodic emptying of the bag and refilling with oxygen to remove excess carbon dioxide. The possibility of a continuing apnoea by reason of hyperventilation and subsequent lowering of the blood carbon dioxide is explained.

The characteristic signs of deep ether anaesthesia, such as the widely dilated pupil and the typical respiration, so irritating to the surgeon who is working in the abdomen cavity, are shown. This unopposed diaphragmatic breathing, characterized by an inspiratory gasp, a pause and a prolonged expiration, has quite often been interpreted by a surgeon as too light an anaesthetic. The intestines are being pushed out and, naturally, he complains. The intern is warned of a situation such as this, and of the fact that many surgeons will wrongly interpret the situation as one of inadequate anaesthesia. He is told that when the surgeon demands more ether, tactfully to agree, but in fact to remove all ether until the intercostal muscles return to activity.

The use of carbon dioxide during induction has already been mentioned, but its use at the end of a long operation, where the patient is found to be still deeply anæsthetized, is condemned. Appreciation of blood, brain and lung saturation, which are usually in equilibrium, and which can cause a great depth of anæsthesia in a very short time, especially if hyperventilation is present, is explained. This patient will of course, take an equally short time to come out of such an anæsthetic. Tissue saturation after a long anæsthetic is mentioned, and the fact that carbon dioxide will only give a false sense of security by washing out the ether from the lungs and blood, and therefore from the brain, only to return to almost a greater concentration that before, by reason of reduced ventilation and the return of the tissue-saturated ether to the blood, brain and lungs. To put this more simply, it is explained that it is dangerous to use carbon dioxide on a patient who is deeply anæsthetized at the end of a long operation. If this respiratory stimulant is used, the patient will certainly become very much lighter and reflexes may be elicited. By the time he has returned to the ward however, he may be even more deeply anæsthetized than before the carbon dioxide was used.

4. *Premedication.* Heavy premedication with respiratory depressant drugs is not advised, especially when Pentothal is used for induction. The lowering of the respiratory theshold stimulus becomes marked without a corresponding depression of reflexes, and the acceptance of ether by the patient made very difficult[5].

A small dosage of morphine is advised in conjunction with atropine gr. 1/100 given one hour before the operation. The dose of atropine may be increased to gr. 1/75 in heavily built patients who are to have ether, but I consider the routine use of gr. 1/50 of atropine quite unnecessary. The dangers of over-atropinization with regard to ether convulsions and post-operative atelectesis are pointed out. It is commonly thought by interns that atropine is only necessary if ether is to be used. The advantage of the drug before Pentothal anæsthesia is shown, and the vicious circle coughing due to mucus that may occur when the drug has been omitted. The other most important use of atropine, viz. as a depressor of the vagus, giving a protective action against vagal inhibition of the heart, especially in chloroform anæsthesia, is explained. Children are given Seconal Sodium Gr. ½ per stone body weight one hour pre-operatively, in honey or jam.

5. *Intubation.* At an early opportunity interns are shown the use of the Macintosh laryngoscope, and the glottis exposed under deep ether anæsthesia, usually at the end of an operation for hernia or appendix in a healthy adult. The necessity of a relaxed jaw and depressed laryngeal reflexes for succesful intubation by direct laryngoscopy is stressed, and deep ether anæsthesia is used to obtain this. Whereas the expert can intubate orally quite easily under Pentothal alone, it is

very definitely not the method for the beginner. Blind nasal intubation is not taught, as I consider that if the intern is able to pass an endotracheal tube by direct vision it is all that can reasonably be expected of him.

I am convinced that all the difficulties of oral intubation are caused by attempting this manœuvre under too light anæsthesia. The surgeon who is in a hurry is often to blame (if only he realized that an extra five minutes with the mask on the face would probably save a further 15 to 20 minutes, accompanied by all the trauma to the teeth, pharynx, vocal chords, etc.) he would probably refrain from urging his inexperienced anæsthetist to 'get the tube in'.

It is stressed very firmly that routine intubation in all cases is very bad anæsthetic practice, and that there must be a definite indication for its use. Once again the intern is reminded that to inflate a patient, an endotracheal tube is not essential. It is often stated that if curare is used, an endotracheal tube is essential. I have never appreciated the rationale of this statement. I use curare, or one of the synthetic preparations, for most abdominal operations, and with the exception of upper abdominal cases, I have not intubated one case. If apnoea occurs, or assisted respiration becomes necessary, the patient who is under the influence of curare is easy to inflate with a clear airway and a tightly fitting mask.

6. *Local Anæsthesia.* Interns are shown the hospital setting for all local (including caudal) anæsthetics. This consists of a 300 c.c. measuring can, ampoules of 100 mg. of Anethaine (Amethocaine HCl), ampoules of 1:1000 Adrenaline hydrochloride, and bottles of 1% Procaine, 2% Procaine and ½% saline, with the usual syringes, needles, etc. The intern is told to think in terms of gramme, milligramme and cubic centimetre, and not in terms of minims and ounces. He is shown that if he puts into the can 50 c.c. of 1% Procaine, 50 c.c. of ½% saline, together with 100 milligrammes of Anethaine and ½ c.c. of 1:1000 Adrenaline hydrochloride, the resultant 100 c.c. will contain a mixture of ½% Procaine, 1:1000 Anethaine and 1:200,000 Adrenaline hydrochloride, which is the maximum concentration of adrenaline allowed.

The properties of Procaine and the longer acting Amethocaine hydrochloride are dealt with; 2% Procaine, or 1:1000 Anethaine, is only advised for nerve blocks, with ½% or 1% Procaine ample for infiltration purposes: the corresponding concentration of Anethaine is 1:4000 to 1:2000. The use of Adrenaline hydrochloride is advised for all local anæsthetics for the purpose of reducing vascularity and delaying too rapid absorption, which gives a longer action to the anæsthetic and reduces the occurrence of toxic symptoms. Signs and symptoms of toxic reactions and the necessity of their immediate treatment, by assuring a clear airway, the administration of oxygen, and the injection of an ultra-short-acting barbiturate is stressed.

Great variations regarding the maximum dose of the different local anæsthetics exist in the textbooks, but it is not always appreciated by the intern that it is far safer and more effective, to use comparatively large amounts of a dilute solution than less of a high concentration; 300 c.c., 150 c.c. and 60 c.c. are the maximum amounts I advise for concentrations of ½%, 1% and 2% Procaine, and 1:4000, 1:2000 and 1:1000 Amethocaine hydrochloride respectively, in the fit, healthy adult. For all shocked and elderly patients these amounts must be considerably reduced.

7. *Spinal Anæsthesia.* The hospital setting is shown, which consists of an autoclaved wrapper, iodine and swabs. The contents of the wrapper consist of a Sise introducer, a fine gauge Howard Jones spinal needle, a file, a mixing needle, one 20 c.c. syringe, one 2 c.c. syringe, and ampoules of light and heavy Nupercaine. The necessity of a full aseptic technique with cap, mask, sterile gown and gloves is required.

The use of heavy Nupercaine for a low spinal anæsthetic injected with the patient sitting up, and its use for abdominal cases with the patient in the lateral position, are demonstrated. The Howard Jones technique with light Nupercaine is used. There are so many different techniques for spinal anæsthesia such as Lake's, Sebrecht's, Lemmon's, etc., and so many different drugs, such as Procaine, Decicaine, Gravocaine to name only a few, that where the intern is concerned I think it is better to show him one light and one heavy technique only. For the same reason one drug only is used, Nupercaine, which has withstood the test of time and is probably the drug most frequently encountered.

I do not advise the routine use of a drug to raise the blood pressure in every spinal anæsthetic, but to use one when signs are apparent that the blood pressure has dropped to a dangerously low level; 70 mm. Hg for the systolic reading is an absolute indication for raising the blood pressure, as at this level the kidneys cease to function, but in many cases signs will arise before this level is reached[6]. Many surgeons, when performing an abdomino-perineal excision of the rectum, demand spinal anæsthesia and ask that no drugs be given for raising the blood pressure, on account of the excessive hemorrhage which occurs in this operation. When a drug is required, Methedrine (Burroughs Wellcome) is given, 15 mg. intravenously and 15 mg. intramuscularly. This drug has been proved to be the most efficient at present available for raising the blood pressure[7].

The position of the patient on returning to the ward, following a spinal anæsthetic, is not so important as it was recently supposed to be. A 'head down' position for 24 hours following a spinal anæsthetic was adopted as routine to avoid the all too common spinal headache. These headaches have been proved almost conclusively to be due to minor degrees of infection, and if a rigid aseptic technique is used and the autoclaved wrapper adopted as routine procedure, spinal headaches rarely occur. When a case of spinal headache does occur, it is usually found that considerable difficulty was encountered in 'getting in', with subsequent embarrassment to the anæsthetist and the abandoning of the aseptic technique.

I find it commonly thought that following a light spinal the patient is placed in a 'head down' position in the ward to limit the spread of the anæsthetic. This statement actually appeared in a number of the *Nursing Times*, and to avoid the recurrence of an occasion when a patient of mine was place in a 'feet down' position after receiving a heavy spinal anæsthetic, it is explained that after 20 minutes a spinal anæsthetic is

'set' and will go no higher, regardless of the patient's position. It is an absolute rule, however, that if a heavy spinal is used for gynæcological operations, no Trendelenberg position is permissible for 20 minutes following the injection. Post-operatively I advise the intern merely to keep the patient flat without pillows until the following morning, and often I think that even this is unnecessary.

8. *Caudal Anæsthesia.* The method of inserting a needle into the sacral hiatus is shown, and the setting and drugs used are the same as described in the section on local anæsthesia. The value of this form of anæsthesia for operative procedures in the perineal region is explained, as well as its use for abdominal operations in the bad risk case, and for caesarean sections. The length of time required before full anæsthesia is obtained, the uncertainty of its action, the possible danger of intrathecal injection, as well as the technical difficulty in obese patients, are factors suggested as adverse criticism regarding this type of anæsthesia.

9. *The Care of the Eyes.* This is perhaps a small point, but I meet many interns who are so anxious to dig a finger into the cornea at frequent intervals during an anæsthetic. This will undoubtedly do harm to the cornea and if it is essential to elicit the corneal reflex, a piece of cotton wool soaked in saline will cause no harm; but a dirty, nicotine-stained finger will do a lot. Castor oil which has for long been instilled into the eye after ether anæsthesia, is absolutely forbidden. Ether is soluble in castor oil and can do nothing but harm. If after ether anæsthesia a definite conjunctivitis is observed, a drop of liquid paraffin in the eye will be beneficial. If liquid ether, however, has got into the eye, it should be at once washed out with saline, as severe damage may be done to the cornea. If there is any doubt whether 'something or other' should be put into the eye, it is far better to put in nothing. During a long anæsthetic, usually when administered by the endotracheal method, some patients will be found to have their eyes wide open throughout the operation. Adhesive plaster should always be used to close the eyes, or drying of the cornea will occur.

10. *Choice of Anæsthetic.* The question 'what is the safest anæsthetic', has been asked often both by doctors and the lay public. The answer I give is that the safest anæsthetic is that with which the administrator is most familiar. It is usually the anæsthetic agent that is referred to in the question, but the method of administration is also important. Ether given by the open method is by far the safest for the inexperienced anæsthetist, and the only agent and method that I think should be fully understood by the medical student on completion of his anæsthetic training.

With regard to the intern, one has to consider that after he has completed the year that is now required, he may go into general practice in some remote 'dorp', or proceed to take up further hospital appointments at other centres in the Union. For this reason, the various methods enumerated in this paper are taught, and whereas by some, they may be thought to be too comprehensive, the object in view is to equip the intern with a working knowledge of anæsthetic agents and methods that he may encounter when he leaves the hospital.

Closed circuit anæsthesia, and agents such as Cyclopropane, Vinesthine, V.A.M., etc., or any of the relaxant drugs, are not taught. The intern has the opportunity of seeing these agents, as well as closed circuit anæsthesia in use, if he so desires, but I consider that they are all within the sphere of the specialist, and no attempt is made to teach them.

SUMMARY

1. The various anæsthetic agents and methods of administration which are taught to interns, are stated.

2. The common worries and difficulties of the intern with regard to anæsthesia are outlined. A special mention is made of the apnoeic patient.

3. A suggestion is made that the teaching schools are not confining their instruction to the simple methods of anæsthesia and the basic essentials of anæsthetic procedure. It is possible that the anæsthetic death rate, which is far too high, might well be reduced if this were done.

I would like to thank Dr. J. Parker, Medical Superintendent, King Edward VIII Hospital, Durban, and Dr. S. Disler, Medical Superintendent, Grey's Hospital, Pietermaritzburg, for the help and co-operation they have given me regarding the organization of anæsthetic instruction.

I would also like to thank Dr. A. Lucas Young for his help and advice in preparing the section on the care of the eyes.

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CATHETERIZATION OF THE NATURAL OPENINGS OF THE ANTRUM OF HIGHMORE

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Non-neoplastic affections of the antrum of Highmore constitute one of the major unsolved problems of medicine, their universal incidence, recurring nature and frequent chronicity imparting and reflecting concurrent socio-economic considerations.

Ever since Nathaniel Highmore (1652) fully described the cavity that bears his name, these affections have defied physician and surgeon alike, the former with their cause and cure, the latter with their phoenix-like propensities.

Earliest and commonest of antral affections to receive recognition and attention was infection and inflammation, an event determined by the age-old incidence and epidemic proportions of the exanthemata, the common cold and influenza. These diseases with their upper respiratory components, secondary pyogenic sequelae and total disregard for all age groups, frequently had initiating virus etiology for which, until recently, no virucidal agents existed.

One of the first methods employed to evacuate pus from the antrum of Highmore was extraction of the first molar tooth, with enlargement of the socket into the affected cavity and lavage through the newly created opening (Cowper, 1722). Its replacement by the safer and simpler inferior meatal puncture of Mickulicz (1887) was a welcome advance, aided and guaranteed by the timely introduction (1884) of the local anaesthetic cocaine.

As the inferior meatal approach superseded the dental one, so has the safer and simpler catheterization of the natural opening, within the last 25 years, become increasingly the method of election in non-surgical diagnostic and therapeutic antral management.

That the ostium should be the obvious way into the antrum is suggested by the embryological fact that the antrum takes origin, in the third month of foetal life, at the site of the ostium maxillare, as an evagination of the mucous membrane in the depths of the infundibulum ethmoidale, a well-developed groove, lateral to the erectile-tissue covered uncinate ridge on the superior surface of the inferior turbinate.

Natural opening catheterization calls for a sound knowledge of the anatomy and physiology of the area in question.

The antra at birth are mere slits and are the furthest developed of all nasal sinuses, being completely developed by the 15th year except at the infero-posterior angle where pneumatization still proceeds following eruption of the third molar tooth.

The normal adult antrum is of 12-15 c.c. capacity in both sexes and most races, but may vary within wide limits, their extremes generally suggesting a pathological basis.

The cavity is lined with ciliated columnar epithelium, with the bulk of the mucus secreting glands located in the vicinity of the natural openings, 'with the more remote areas of the cavity, where evaporation is negligible, being more sparsely provided' (Proetz).

Entrance to and egress from the antrum is effected via natural openings situated in its medial wall, which is also the lateral nasal wall.

The technique of antral catheterization calls for a sound knowledge of the applied anatomy of the lateral nasal wall, particularly its anterior portion where, under cover of the anterior half of the middle turbinate, the uncinate ridge, the ethmoid infundibulum and ethmoid bulla constitute the important landmarks for the natural openings.

Thus the uncinate ridge, the thin, usually non-resistant structure arising from the anterior medial aspect of the ethmoid labyrinth, curves downward, backward and laterally, with its crescentic curve parallel to that of the bulla and constitutes the medial boundary of the hiatus semilunaris, the space lying between its free upper edge and the bulla. It offers no real resistance to instrumental displacement.

The semilunar space, whose lower and posterior end 'very frequently lies level with the free border of the middle turbinate' (van Alyea) ends where the downward curving uncinate ridge diverges from the upward curving bulla, and it is at this point, the bulla-uncinate angle, that the maxillary ostium is most commonly situated—70% of cases (van Alyea, Rosenberger).

The clinical importance, therefore, of trying to visualize the bulla preparatory to attempted catheterization is obvious. This convex, inverted, bony dome, the most prominent structure in the middle meatus, thus acts as an excellent sign-post to probable ostial location (70% of cases). It is usually hidden by the anterior half of the middle turbinate and usually can be seen only when this structure is removed, though occasionaly if the middle turbinate does not extend down far enough to cover the uncinate process, the uncinate, bulla and hiatus semilunaris are exposed to view. It may be seen, too, in those rare instances when it is exceptionally large.

The bulla forms the supero-lateral boundary of the hiatus semilunaris and may not infrequently be visualized by adequate cocainization and shrinkage of the covering mid-turbinate which, since its lower free border in the non-cocainized, non-shrunken state, is 'very frequently' level with the ostium containing bulla-uncinate angle will further facilitate successful catheterization.

As only 70% of maxillary ostia are in the lower posterior end of the hiatal cleft, the location of the remainder is of some clinical moment.

A considerable percentage of this remainder will be found within the confines of the infundibulum ethmoidale, the groove lying lateral to the uncinate ridge, and whose depth corresponds to the height of the ridge. The groove widens out posteriorly becoming shallower, merging finally into the lateral surface of the mid-meatus.

These more anteriorly placed ostia are as frequently found in the depths of the infundibulum as in its lateral wall, those in the lateral wall being vertical, with their upper portion sometimes extending above the uncinate edge. This type would obviously be easier to catheterize than those situated in the depths of the infundibulum.

The writer has clinical experience of nine cases where the ostium appeared beyond the confines of the infundibulum. Five of these were located just anterior to the uncinate ridge and were recognized by the anteriorly placed, crescentic, valve-like fold of mucous membrane which both protected and sign-posted them.

The remaining four of these extra-infundibular ostia were found just posterior to a hump in the mid-region of a bulky inferior turbinate. Experience with the first two of this type suggested the possible locality of the ostium in the second two because of the physical characteristics of the inferior turbinate. It was the clinical impression that these four cases represented extra-infundibular maxillary ostia but the possibility of

their being 'low' accessory ostia cannot be entirely excluded.

In seven cases the ostium was anterior to the anterior-free border of the mid-turbinate, being infundibular in two and of the extra-infundibular sub-uncinate variety in five instances.

In the adult there are, frequently, two kinds of natural openings in the medial antral wall and, depending on their locality, these are designated either ostium maxillare or accessory ostium.

The maxillary ostium is generally within the limits of the infundibulum, while the accessory ostia are situated either above, below or behind the maxillary ostium at 1-11 mm. distance.

The size of the maxillary ostium varies (1 mm. in diameter to 19 × 5 mm.) being relatively larger in young children than in adults. This anatomical fact is of importance in the mechanics of drainage, considering the usual absence of accessory ostia in both infants and young children. This relatively larger ostium is held to account for the lesser incidence of maxillary sinusitis in young children as well as their greater tendency to spontaneous cure. The larger ostium renders catheterization easier in the child, and successful catheterization in young children has been reported (Yankauer, Goldman).

It is not sufficiently appreciated that the maxillary ostium is not merely an opening with two dimensions in one plane. Myerson suggests it be called the naso-maxillary canal. Simon arbitrarily classified those openings as canals which were over 3 mm. in length, designating all those below this figure as ostia. He found 82.7% canals.

The clinical importance of the canal-like nature of the naso-antral passageway (over 80% of cases) is its readier oedematous occlusion. This could be both a cause of chronicity and a contributing reason for failure to catheterize in a given instance, aided by the possible deviation of the canal, and an excessive length (up to 15 mm.).

The accessory ostia, which are developmental in origin, are in the pars membranacea, posterior to the bulla-uncinate angle. They may lie 1-11 mm. above, behind or below the maxillary ostium. They are absent in the foetus and rare in infants and young children (Schaeffer). They are irregularly round or ovoid, or a thin slit, and vary in size from a pinhead to 6.5 × 10.5 mm. Using Simon's criteria they are true ostia in 94% of cases and are thus easier to catheterize since they lack deviation and length. Their presence contribute to the percentage of successful catheterizations of the maxillary antrum. Figures for their presence vary with different authors (23%-43%). Their development, with growth, could conceivably lead to spontaneous natural cure of previous chronic infection.

The combination of an active, intact, ciliated epithelium, normal mucus production and an unimpeded ostium thus constitutes the anatomical and physiological pre-requisites of antral well being.

FEASIBILITY OF CATHETERIZATION

In spite of imposing patronage, a curious apologetic note enters into the literature on catheterization. It is because of the accessory ostia. Their presence creates doubt in individual cases whether the true maxillary ostium was entered or an accessory opening, and so the feasibility of a high percentage of maxillary ostium soundings appears in doubt and the value of the method in question.

The fact that the catheter enters the accessory ostium instead of the maxillary, as indeed it well might on account of its proximity, can never be considered an apologia for the method. Indeed if, because of the presence of accessory ostia, three to four out of five antra can be safely and simply sounded, what better vindication could the method have, especially since accessory openings, being true ostia in 94% of cases, are lacking in length and deviation and are easier to catheterize. Rosenberger's practical summing up covers the essentials of the situation: 'In catheterization we have a technique that is anatomically correct, frequently applicable, not hazardous, informative, and one which is certainly feared less by the patient than puncture.'

The main objections to puncture, viz. shock, pain, haemorrhage and air embolism, are absent in natural opening catheterization, which has the following additional advantages:

1. It can be carried out successfully in three to four out of five antral cases. It thus reduces the frequency of puncture together with its unpleasant features.
2. It can be used on people who would not tolerate a single or a second puncture.
3. Repeated 'washings' can be carried out and are much better tolerated. A weekly lavage for several consecutive weeks is a frequent and relatively simple affair.
4. The unpleasant sensation and sound of a trocar going through bone is entirely absent in cannulization.

TECHNIQUE OF CATHETERIZATION

Encouragement to acquire the technique of catheterization pervades Myerson's statement that: 'The cannula is so easily introduced in a majority of the ostia that are catheterized that this method becomes a most desirable procedure. Dropping the cannula into a hole, when it is easily done, cannot be compared to puncturing a bony wall, however thin', but the practised rhinologist's 'respect' for one of the key areas of the nose is reflected in his observation that 'such ready success, however, should never occasion an incautious, rough approach in so vulnerable and so important an area'.

High percentage success for the manoeuvre demands:—

1. Thorough knowledge of the applied anatomy of the lateral nasal wall, especially the anterior part;
2. Thorough and adequate cocainization.

Good visualization of the ostium locale is essential. The literature is curiously silent on this point, particularly when one considers the wealth of anatomic guidance to the region of the ostium. It is the writer's opinion that unless this is achieved by a routine systematic preparation a certain percentage of avoidable failures will occur, and individual guiding landmarks for subsequent, easier and quicker catheterization may

be missed. Individually 'easy' catheterizations should never encourage neglect of this routine, and it should never be sacrificed to speed and vanity. Either will bring humiliation and trauma. Two cases have been seen that could be sounded without preliminary cocainization, but these were only done after repeated and thorough familiarity with their antral openings had guaranteed its feasibility. Injury to the region of the ostium must be studiously avoided.

The local anaesthetic of choice is *cocaine*, its use demanding the usual precautions. Preliminary intracutaneous testing has not been resorted to, but the routine prophylactic use of ½-1 grain of barbiturate half to one hour before cocainization has been adopted throughout.

The 'cocaine mud' method of applying the local anaesthetic has been found best. It has facilitated the success of the manoeuvre, reduced the likelihood of trauma, and given confidence and comfort to the patient.

Procedure. A one inch square, single gauze thickness, good cotton wool is wound on, and a ½ inch beyond, the end of a metal applicator, then soaked in 1:1,000 adrenalin chloride solution, pressed relatively dry, and next dipped into cocaine flakes. The flakes adhere to the moist cotton but do not dissolve. This mixture has been called *cocaine mud*.

The inferior turbinate is the first structure to receive attention, since it frequently presents a ballooned appearance and obscures the 'field'. The 'mud' is gently massaged over the surface of its anterior two thirds, and the adjacent portion of the nasal septum which also contains some erectile tissue. As a rule, one application is sufficient, and in 1-2 minutes excellent visibility is provided for the next step. This is the application of the 'mud' to the inferior free border of the mid-turbinate, since this is very frequently on a level with the ostium, and shrinkage here will increase accessibility.

The anterior free end of the mid-turbinate and the adjacent atrial region of the lateral nasal wall up to the uncinate ridge are next cocainized and within 1-3 minutes the inverted dome-shaped bulla ethmoidalis is frequently rendered visible. This prominent middle meatal sign-post of the maxillary opening (70% of cases) is a most desirable beacon to sight. It is, furthermore, the lateral boundary of the hiatus semilunaris, the medial one being the uncinate ridge. A 'mud' plug now placed in the middle meatus in contact with the infero-medial surface of the bulla, and the uncinate crest, cocainizes the boundaries of the hiatus semilunaris, and the adjacent ethmoid infundibulum, and widens the bulla-uncinate angle situated at its posterior end where 70% of all maxillary ostia are located.

This plug should remain in place 3-5 minutes, the longer period being observed if it is considered that the mid-meatus appears narrow. This provides good anaesthesia with maximum shrinkage of the hiatal-infundibular zone, thereby aiding the scope of catheter manoeuvre with a corresponding reduction in the possibility of mid-meatal trauma. The chances of sounding ostia in the depths of the anterior two-thirds of the infundibulum are also much increased by attention to this point.

Where adequate preparation has been carried out it sometimes happens that the ostium becomes visible, particularly the more anteriorly placed vertical type in the lateral infundibluar wall when the uncinate crest is of the low variety. It may also be seen when the mid-turbinate is small and poorly developed and does not extend either downwards or anteriorly sufficiently to cover the uncinate, bulla and hiatus. A similar state of affairs may have been produced by partial turbinectomy. The anteriorly placed sub-uncinate variety of extra-infundibular ostium may also be visible, sign-posted by its anterior crescentic valve-like mucosal 'curtain'.

If at any stage of cocainization the ostium should become visible, the case is ready for sounding. In the vast majority of cases, however, it is not visible.

Apparatus. The two catheters designed by van Alyea have been used throughout. There are, however, many other makes available, e.g. Pierce, Yankauer, Myerson, etc.

It is an advantage to have a small detachable handle fitted. This keeps the operator's hand out of the visual field, provides greater control of the instrument, and facilitates manoeuvre.

According to Myerson a copper wire study revealed that the most suitable sound was one the distal end of which was bent at an angle of 90°, the length of the distal arm being 6 mm. This conclusion was independently confirmed during initial cadaveric practice.

The two van Alyea catheters are the longer sweeping quarter-circle type better suited for the deep infundibular horizontal ostium, the low type posterior to the humped inferior turbinate, and the more common bulla-uncinate angle kind—and a shorter right angled (Myerson type) variety more suited to the narrow mid-meatus where manoeuvre is likely to be restricted.

Catheterization. The ostium *locale* having been prepared, and the ostium being of the invisible variety, the following *modus operandi* has been adopted. The instrument, with handle attached, is held in the right hand for the right side, and in the left hand for the left side. For the commonly situated maxillary ostium in the bulla-uncinate angle (70% of cases) and the neighbouring accessory ostia of the pars membranacea, the method follows the description of van Alyea with some modifications.

The cannula is passed with the tip pointing upward to a point half-way back in the nasal cavity above the inferior turbinate, and posterior to the bulla when this is visible. Rotation laterally brings the tip in contact with the pars membranacea which is then carefully probed for an accessory ostium. If none is available, the cannula tip is then brought forward and upward lateral to the mid-turbinate to contact the bulla at the posterior end of the hiatus semilunaris, being at the same time rotated laterally to lie horizontally, in contact with the inferior free border of the mid-turbinate on a level with which the ostium frequently lies. At this point 70% of maxillary ostia will be found and entered—horizontal and vertical types—provided no anatomical peculiarity obstructs such entry. If not, then further rotate the catheter so that it points downwards and laterally when an anteriorly oblique type ostium may be entered.

If this 'posterior approach' fails, the next step is attempted location of the ostium in the depths or lateral wall of the infundibulum ethmoidale ('anterior approach').

The cannula tip, facing downwards, is brought under the anterior end of the mid-turbinate and hooked over the uncinate ridge to engage in the infundibulum. The tip is gently and slowly moved posteriorly along the floor of the groove, when a horizontal or posteriorly oblique ostium may be entered, the cannula assuming an inverted position. If no such ostium is found, the cannula is now rotated and the tip directed laterally in search of a vertical ostium.

If the inferior turbinate is of the humped variety in its mid-region, an ostium may be located behind it, the manoeuvres being as for the deep horizontal or oblique infundibular varieties, using the sweeping quarter-circle type cannula, with the tip in the inverted position, and then rotating it medially and downwards to bring the catheter horizontal with the tip pointing laterally. Very occasionally, on account of the direction of the ostial canal, the right-angled shorter catheter may be found more suitable.

Myerson lists the following points as evidence of proper placement of the cannula.

(*a*) Absence of pain and discomfort.

(*b*) Depth of position of distal end of cannula and its impingement against the firm ostial borders on forward and backward movement. Rim Test.) It has also been noticed on occasions that a gentle attempt to rotate the catheter upwards is quickly prevented by the frequent canal-like nature of the ostium.

(*c*) Position of the proximal end against the septum.

(*d*) Pus return (with lavage) particularly if mid-meatus was clean at commencement.

(*e*) The position of the ostium can be recognised on occasion by site of re-appearance of pus after mid-meatus has been cleansed following cocaine shrinkage. It may be recognised by the crescentic fold or 'curtain' of mucosa anterior to it; also in cases that have had previous partial turbinectomy, and in the spacious mid-meatus when the vertical type projects above the uncinate crest in the anterior infundibular region.

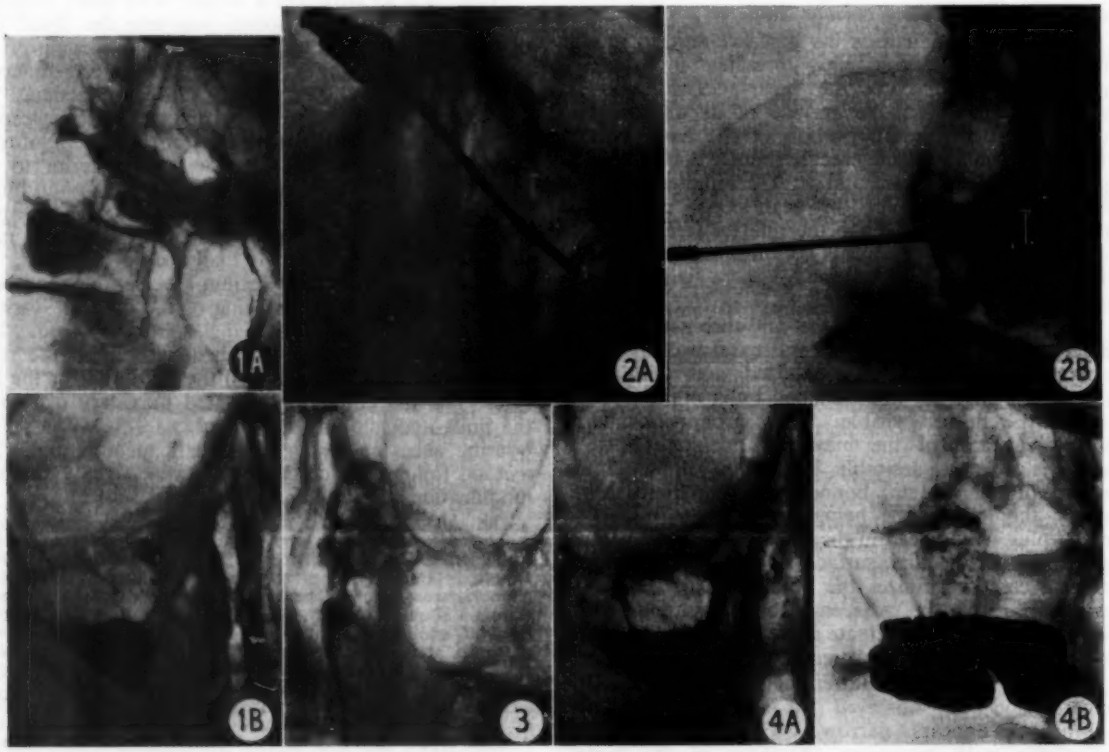
(*f*) The distinctive 'feeling' of entering a cavity. This has amounted on occasion almost to a falling or sudden lunge into space.

(*g*) The type of sound heard *after* irrigation. When air is pumped through to displace solution an explosive bubbling is heard (Lermoyez's hydro-aerique). A moderately pitched, somewhat musical swishing sound which is characteristic and distinctive has been noted occasionally *during* irrigation. This sound is heard also by the patient 'in the ear' as opposed to the 'sound in the head' during sphenoidal sinus irrigation.

(*h*) Irrigation of the antrum is felt in the cheek in the region of the zygoma or the outer orbit, or along the upper teeth as a fulness or tightness. If the antral cavity is small and the 'return' impeded for any reason, pain is soon experienced due to mounting pressure. It has been noted that all these sensations wax and wane with variations of the fluid pressure but they may not be very strongly felt when a large ostium allows a rapid 'return'.

If a sounding is unsuccessful the irrigant will be felt *immediately* 'in the nose' as a swishing in the region of the nasal bridge, and it may run into the throat as well (avoided by patient repeating 'K', 'K').

With successful placement there is a slight but noticeable delay in irrigant 'return', the antrum having to fill to ostial level before the spill-over occurs. This is particularly noticeable in cases of a 'high' ostium.



*Figs. 1*A (*Antral*) *and 1*B (*Lateral Views*). Ethmo-maxillary compartment leading into an intra-antral compartment.
*Figs. 2*A (*Antral*) *and 2*B (*Lateral Views*) demonstrating antral catheter in antrum.
Fig. 3 (*Antral View*). Inadvertent filling of bulla ethmoidalis demonstrating 'signpost proximity' of this cell to antral opening.
*Figs. 4*A (*Antral*) *and 4*B (*Lateral Views*). Antral—Long horizontal passage from ostium into antrum. Lateral—showing tubular character of ostium with intranasal and intra-antral openings.

Reasons for Failure to Sound. The accessibility of the maxillary ostium will determine its availability for sounding. Inability to approach the ostium may be due to:—

1. Lateral crowding of the mid-turbinate particularly if of the low hanging type.
2. A deep infundibulum with a horizontally placed ostium within its depths and out of reach, or a vertical ostium not projecting above uncinate crest level.
3. An anatomically narrow or pathologically occluded infundibulum (hyperplastic or polypoid mucosa).
4. Marked septal deviation obscuring the anterior end of the mid-turbinate and the approach to the mid-meatus.
5. A bulging atrial region preventing visualization of and approach to the mid-meatus. One such case was seen.
6. A large overhanging bulla—rare.

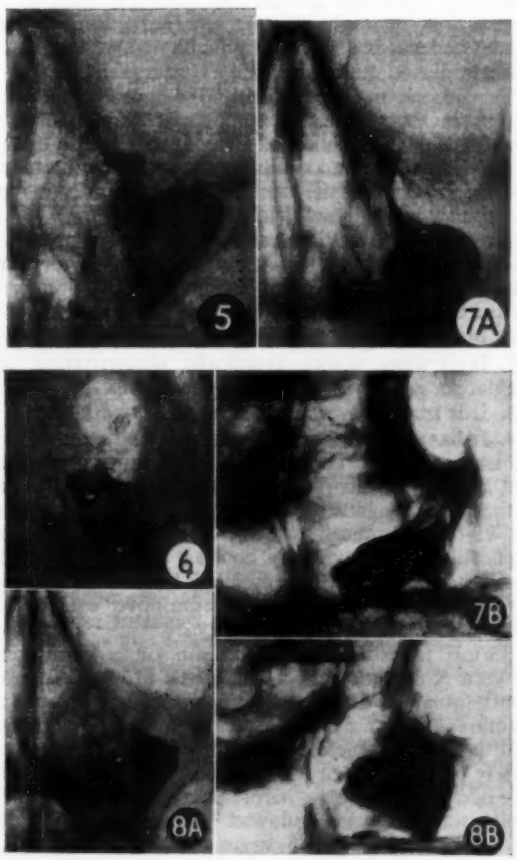


Fig. 5 (*Antral View*). High ostium with obtuse angled, irregular calibred channels into Antrum.
Fig. 6 (*Antral View*). 'Ciliary streaming' towards ostium.
Figs. 7A (*Antral*) *and 7B* (*Lateral Views*). Anteriorly placed low ostium.
Figs. 8A (*Antral*) *and 8B* (*Lateral Views*). Low, wide ostium.

The more common causes, however, are insufficient and inadequate preparation, combined with inexperience and lack of practice in the catheterization technique. In the writer's experience nasal polypi rarely prevent catheterization.

Bleeding from perforation of the pars membranacea may occur in exceptional cases. It is never copious, generally short-lived, but has been known to last as long as four days. In two cases it lasted four hours. An adrenalin plug sufficed.

Application. All therapeutic irrigations have been done with comfortably warm Fischer-Bledsoe solution, slightly hypertonic (22 c.c. made up to 500 c.c. with boiled water). This used to be followed by instillation of antibiotics, but as results did not justify their continuation, this has been given up entirely. Most antibiotics, locally applied, cause some degree of irritation, or allergic response which, increasing oedema, retard recovery. Most antral 'infections' consist of mixed bacterial populations of differing degress of antibiotic sensitivity, and antibiotic disturbance of a natural balance of organismal association may encourage excessive growth of more virulent groups. Furthermore, a considerable number of bacteria produce penicillinase, which destroys penicillin. The coliform bacilli are notorious in this regard and are often found in association with penicillin-sensitive organisms. Their presence militates against success.

Clinically it has been observed that the apparent initial improvement after antibiotic instillation is not infrequently followed by an increase in exudate and a change in the character of the pus. The literature, too, contains reports, with bacteriological studies, demonstrating changes in flora and exudate while the frequent admonitions to choose the antibiotic only after due bacteriological investigation is further, indirect testimony and support for these observations.

Furstenberg makes the practical point, however, that 'the isolation and identification of the causative organisms in every case of infection is an idealistic pronouncement but hardly feasible and practicable in everyday practice'. Furthermore, most infected antra show considerable ciliary activity and single instillations of antibiotics are unable to remain long enough to be really effective, rapidly lessening in effective concentration by dilution and drainage.

The function of irrigation is to remove exudate. Nungester has shown that bacteria in the presence of mucin increase to an appreciable degree the virulence of the infection.

Normal nasal mucus consists of 2-3% mucin, 97% water with 1-2% salts (Ca, P, Na). With infection the mucin content increases. Mucin does not interfere with phagocytosis (Nungester) but inhibits the bactericidal properties of the phagocyte cells. Hence bacteria survive in the body of the host for longer periods without diminution of numbers (or toxaemia), or may allow organisms to increase in numbers. The critical ingredient of mucus, therefore, would appear to be mucin, a protein combined with glucose.

Mucins differ in their composition. Nasal mucin, e.g. is six to seven times as viscid as gastric mucin, while those of epithelial origin differ from the

hyaluronic acid mucins in their chemical composition and reaction to enzymes. Some of the common pathogens of sinus disease, viz. A and C haemolytic streptococci in the mucoid phase, contain hyaluronic acid, a simple mucopoly-saccharide, solutions of which are extremely viscid.

Slight degradation of hyaluronic acid solutions as by ascorbic acid and the enzyme hyaluronidase leads to a pronounced drop in viscosity, which is also achieved by the presence of salts. Hyaluronidase is found in the common upper respiratory pathogens, viz., rough (Type II) pneumococci, A and C haemolytic streptococci, staphylococci and many anaerobes. It has also been found to be responsible in part for the turbidity of pathological fluids.

This enzyme acting upon the hyaluronic acid component of the interfibrillar ground substance or cement of connective tissue (subepithelial) may result in:

1. Oedema of both tissue fibres and spaces.

2. A fragmentation of collagen fibres and the intercellular cement and such foci may act as irritants to the tissues, giving rise to inflammatory changes of a granulomatous nature which may resolve by fibrosis.

'Fragmentation' of 'cement' hyaluronic acid thus loosens the intercellular ground substance and since hyaluronidase is considered as probably identical with the spreading or diffusing factor of certain organisms (McLean) abnormal diffusion of substances (? exotoxins) into and from the tissues is thereby permitted (Duran-Reynals).

Finally McCarty has suggested that hyaluronidase, by breaking down more complex molecules into simpler ones, probably makes nutriment available to the bacteria from the medium in which they grow.

Thus since mucin, its quantity, origin and viscosity, together with the organisms and their enzymes, appears to control the situation, the case for plain lavage is complete. Fischer-Bledsoe solution, a solvent for mucin also mechanically removes organisms, their enzymes and their food supply and, by virtue of its chemical composition and hypertonicity (as used) assists the reduction of mucosal oedema and the prevention of granulomatous inflammatory changes and fibrosis.

In clinical support of this it has been observed that preceding recovery the return flow tends progressively to lose its glutinous, viscid, often ropy character, to assume finally the consistency of the lavage solution. Coincidental with this there is very often reduction in turbidity and the number of pus clumps, with a striking reduction in the generalized toxaemia and its manifestations; 500-1000 c.c. of this non-irritating solution is used per lavage, which is done not oftener than once in 4-7 days. Burtoff uses 200-300 c.c. of normal saline, but the distinct clinical impression has been formed that a greater volume of solution is the more efficacious. In the case of Fischer-Bledsoe solution this obtains for two reasons:—

1. A more thorough and complete mechanical cleansing of the 'mucus' membrane is possible, with a corresponding reduction in the viscosity of the antral contents which aids drainage and hastens mucosal and ciliary recovery.

2. The greater volume allows longer contact of the irrigating solution with the mucosa, a circumstance which is further assisted by leaving the antrum full of solution at the end of the 'wash', and advising the patient not to blow his nose, for one hour afterwards.

Fischer-Bledsoe solution as used is slightly hypertonic and this aids reduction of mucosal oedema mainly by virtue of its calcium chloride content which is several times that in the original Ringer solution. This calcium salt helps to maintain the dehydration effects much longer once it has diffused into the tissues. Diffusion takes time, hence the use of the greater volume, and the antral filling at the end of the 'wash'. These facts are clinically reflected in the frequent occurrence of further 'drainage' 1-3 hours later of a more or less continuous 'watery discharge' together with an improved nasal airway. These clinical facts have been particularly noticeable since the antrum has been left filled at the termination of each treatment. Reduction of mid-meatal oedema is also thereby facilitated, which further aids antral and ethmoidal recovery.

The second major application of antral catheterization is in the field of radio-contrast diagnosis. This non-disturbing method of introducing radio-opaque media is ideal for mucosal and ciliary function studies, and far superior to the traumatic inferior meatal route approach which injures the mucosa.

Two types of media have been used, viz. the more viscid oily kind and the watery form as used for intravenous pyelography. The aequeous type is preferred for the following reasons:—

1. It allows rapid, ocular testing for iodine sensitivity.

2. It is more stable, practically non-irritating, and the danger of free iodine is practically nil.

3. It is less messy and much easier to work with.

4. It has been shown that penicillin and streptomycin are not inactivated and that both antibiotics are soluble in it and can be incorporated therapeutically at the time of the X-ray diagnosis. Further, it has been found that the 72-hour drainage test for ciliary function is not applicable to this type of 'contrast' since, being non-viscid, it tends to drain away much faster. Its retention beyond 24 hours is strong presumptive evidence of ciliary delay and antral pathology.

Burtoff (quoting V. C. Johnson on a comparison between X-ray and clinical diagnosis of antral involvement) found in an analysis of 853 consecutive X-ray examinations of the sinuses in cases in which the clinical records were complete, that X-ray and clinical diagnosis closely paralleled each other in 80% of cases. Thus one case in five may require, before elucidation, a diagnostic, exploratory irrigation followed by radio-opaque filling. Aqueous radio-opaques have an additional advantage in that, being miscible with irrigation residues, they thereby produce a homogeneous medium in universal contact with the mucosa. This lessen diagnostic difficulties.

According to Proetz the introduction of oil into the incompletely emptied sinus causes the oil to assume globular shapes, and instead of adapting itself accurately

to the sinus wall may cling in such a manner as to form grotesque shadows.

The routine Waters and lateral views have been used aided on occasion by the submento-vertical projection, and the prone forehead position for antral roof delineation.

Over 800 catheterizations have been performed since April 1947. They have been done for such reasons as:—

1. Exploratory diagnostic lavage.
2. Collection of specimens for bacteriological, cytological and parenteral penicillin secretion studies.
3. Instillation of radio-opaque media for internal architectural, mucosal and ciliary function investigation.
4. Instillation of antibiotics therapeutically, and for mucosal absorption evaluation.
5. Therapeutic lavage.

Natural opening catheterization was attempted in 76 patients and was successfully accomplished in 66, i.e. 87%. The commonest reason for failure to sound the sinus was a low-hanging turbinate with or without lateral crowding.

The procedure has been well tolerated, no patient has refused a repeat sounding, and all those who have had previous inferior meatal punctures have expressed unequivocal preference for the method on account of its simplicity, its comfort and the absence of the frequently unnerving sound associated with the performance of the puncture technique. Furthermore, catheterization is not a bloody procedure and is, for all practical purposes, a painless one.

No complications have followed this manoeuvre nor need they if the triad of a sound anatomical knowledge of the lateral nasal wall, its adequate and thorough cocainization, together with gentleness, constitutes the foundations of this physiologically acceptable and eminently conservative procedure.

SUMMARY

1. A short history concerning the evolution of catheterization is presented.

2. The applied anatomy of the lateral nasal wall is described.

3. The method of preparation and the technique of catheterization are outlined, including reason for failure to sound the antrum.

4. It is statistically shown that the method has a high percentage feasibility, and is applicable in 3-4 cases out of 5.

5. The main uses of catheterization are outlined.

6. Reasons are advanced for superiority of plain lavage with Fischer-Bledsoe solution in accelerating recovery and preventing chronic mucosal inflammation and fibrosis.

The writer wishes to thank Drs. Meyer, Jacobson, van der Merwe and van der Bergh for their valuable radiological co-operation, assistance and advice.

Thanks are due to Drs. M. H. Finlayson and H. W. Clegg who undertook the bacteriological and cytological studies; also for their co-operation and assistance with the antibiotic absorption and inactivation studies.

Thanks are due to Mr. G. McManus who was responsible for the photographs.

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VERENIGINGSNUUS : ASSOCIATION NEWS

EXTRAORDINARY MEETING OF THE M.A.S.A. (QUEENSTOWN DIVISION) HELD IN THE MASONIC HALL ON 29 APRIL 1950 AT 5.30 P.M.

Present: Drs. G. Ascough, M. Ascough, D. Ascough, Bosman, Bennett, Botha, Farrell, Fismer, J. Frank, W. Frank, Goldstone, Goument, Hayes, Hay-Michel, Holmes, Harris, Johnston, King, Keevy, Kunz, Kaplan, Louw, Norman, Murray, Maartens, Rifkin, Paisley, Paplisky, Schaffer, Schweitzer, Shapiro, Sichel, Simonsz, Swemmer, Swift, Vincent, A. Vosloo, W. Vosloo, Waddell, Wagner, Wessels, Wolpowitz, Weideman, van Soelen, Steyn.

Dr. Schaffer (Chairman) who, on behalf of the members of the Queenstown Division extended a hearty welcome to the visitors, first introduced Dr. Sichel, President of the M.A.S.A. and said he had been appointed to preside over the joint meeting of the B.M.A. and the M.A.S.A. in 1951, and then introduced Dr. Shapiro, well known to all as the able Editor of our weekly *Medical Journal,* a first class journal. Both these men had flown from Cape Town to be present at this meeting. We were very happy and pleased to have them with us. Dr. Waddell needed no introduction. He was well known as a gynaecologist not only in the Border area but further afield. Dr. Schaffer stated that he thought two errors had been made, viz. that Dr. Waddell had not been before elected president of the Border Branch; and that Queenstown was not the headquarters. Later more would be heard about Dr. Waddell at the dinner to follow when he would be invested with the insignia of president of the Border Branch.

The Chairman went on to say that all members were pleased to see Dr. Hay-Michel present. He had recently been very ill; fortunately now recovered. He is the father of the M.A.S.A. in this area. The Chairman welcomed all practitioners from the other towns, and country. He thanked them all for coming along and assisting in making the meeting a success. He felt that the presence of the President and the Editor would make for closer union. He hoped that later the members would voice any suggestions and criticisms or ask any questions.

The Chairman then invited the President to address the meeting.

Dr. Sichel rose amid applause. He said his words would be few. He appreciated the kind and thoughtful invitation and he was glad to have the opportunity to speak and meet the members. He had tried to visit all the places where there were Divisions of the M.A.S.A. and hoped in the near future to visit Kimberley and Maritzburg. He regretted that Dr. Tonkin, the Medical Secretary, was unable to accompany him on this visit as he was leaving for Brisbane in the near future. However Dr. Shapiro kindly and gladly came along. He said he was extremely pleased to see so many present and congratulated us on the organization which brought this about. He would gladly answer any questions if time permitted. With another 'thank you' he resumed his seat.

The Chairman thanked Dr. Sichel and called on Dr. Waddell who gave a most interesting paper dealing with:

1. Cancer of the cervix.
2. Ante-partum haemorrhage and placenta praevia.

Questions were asked and discussions followed.

Dr. King (Seymour) referred to the figures of cancer incidence.

Dr. Goldstone spoke of the psychological aspect and the possibility of making the patient cancer conscious.

Dr. Milne Murray queried the advisability of a country patient with ante-partum haemorrhage travelling the journey to a hospital.

The Chairman thanked Dr. Waddell for his most enlightening paper and also those who had taken part in the discussion. He agreed that the statistician's cancer figures were alarming. Slides should be examined by several pathologists. However, he felt that Dr. Waddell's work and observations covered a long period and that his figures demanded the greatest respect.

The Chairman then invited members to ask any questions.

Dr. Wolpowitz asked about the advertisement in the *Medical Journal* for an assistant medical secretary and an assistant editor and whether the work could not be done by additions to the clerical staff. Dr. Sichel explained that the Medical Aid Society work had grown enormously. The Medical Aid Societies had increased in number and he indicated that they may form the future National Health Scheme. An assistant editor is needed since the journal is a weekly publication. Furthermore the Editor had started a quarterly scientific journal and he was also hoping to publish a Supplement.

Dr. Louw inquired about the relationship between the *S.A. Medical Journal* and the M.A.S.A. Dr. Sichel stated that it was never a personal matter, and that the M.A.S.A. agreed that criticism is justified.

Dr. Vosloo (Bedford) mentioned the press announcements and articles *re* (1) the relationship between poliomyelitis and diphtheria plus pertussis injections; (2) the justification of leucotomy and lobotomy (operations). These press reports affected the practice of the general practitioner. Dr. Shapiro replied that the information *re* poliomyelitis and diphtheria plus pertussis came from overseas. One cannot reasonably force the press to apply to the *Journal* to make anything public: we do not wish to clamp down a veil on material in the *Journal.* We must display a sense of responsibility rather than take executive action.

Dr. Waddell drew attention to the Hippocratic Oath and the New Oath. He felt the latter is more easily understood. A discussion followed.

Dr. Wagner: The new Oath had not been received unanimously by Federal Council.

Dr. Schaffer: Federal Council did not wish to scrap the Hippocratic Oath, and wished to give serious consideration to the new Oath. The matter was noted.

Dr. Louw: Surely no decision will be made until the matter has been discussed by Branches, Divisions and Members?

The Chairman informed those present that they had been given the courtesy of the golf course, and a tourney was being arranged by Dr. Wolpowitz, those wishing to play tennis kindly to contact the secretary.

At 7.30 p.m. the meeting closed and members hurriedly dispersed for the dinner.

PASSING EVENTS

Dr. Victor Berman has joined Dr. Adolph Meyer as a radiologist in African Life Buildings, 85, St. George's Street, Cape Town.

During 1946 and 1947 Dr. Berman was attached to the X-ray Departments of Westminster Hospital and University College Hospital, London. In 1948 he became radiologist to the Johannesburg General Hospital and in 1949 he became a senior radiologist at that hospital.

* * * *

Dr. R. Geerling has relinquished private practice and accepted the post of Chief Neuro-Psychiatrist to the General Hospital, Johannesburg.

He wishes to take this opportunity of thanking all his colleagues for the support they have given him in the past.

* * * *

Dr. Norman Rosenzweig, M.B., Ch.B. (Cape Town), M. Ch. Orth. (Liverpool), F.R.C.S. (Edin.), formerly Registrar at the Orthopaedic Hospital, Stoke-on-Trent, and Orthopaedic Department, Liverpool Royal Infirmary, has commenced practice as an orthopaedic surgeon at 405-406, Diamond House, corner of Longmarket and Parliament Streets, Cape Town. Telephones:—Rooms: 3-0079. Residence: 69-2962.

XITH INTERNATIONAL DENTAL CONGRESS

This Congress will be held in London from 19 to 26 July 1952 under the presidency of Dr. E. Wilfred Fish, and will include scientific papers, clinical and table demonstrations, scientific exhibits, films of dental interest, a dental trade exhibition and an oral hygiene exhibition.

Those interested should make enquiries from the Honorary Secretary, Mr. G. H. Leatherman, of the Organizing Committee, 13, Hill Street, London, W.1, England.

THE BENEVOLENT FUND

The following contributions to the Benevolent Fund during April 1950 are gratefully acknowledged:

Votive Cards: In Memory of:
Mrs. W. G. Mears *by* Dr. A. H. Tonkin.
Total Amount Received from Votive Cards: £0 10 6

Services Rendered to:
H. Malherbe *by* Mr. Edelstein, Mr. Krynauw, Mr. Allen, Dr. Stuart, Dr. Mendelow, Dr. Ritchken.
Mrs. D. J. J. Ackermann *by* Dr. Ruby Sharp.
Mrs. D. J. du Plessis *by* Dr. J. J. Jacobson.
Mr. D. I. Adler *by* Dr. R. Lester Almond.
Total Amount Received from Services Rendered: £37 12 0

£38 2 6

QUESTIONS ANSWERED

RED, PUFFY GUMS

Q. A young married woman of 23 has been referred by her dentist as she has red puffy gums. She has had this for many years despite treatment by vitamin C tablets and fruit, etc. Applications of gentian violet and glycerine boracis and even cutting of a portion of gums away by diathermy gave no permanent relief. This latter measure gave only temporary alleviation. The swelling, though generalized, is most marked just below the lower canines. The mouth and the gums are otherwise healthy.

Complete examination of the patient reveals no other abnormality. She is not pregnant.

The patient states that this puffiness definitely becomes worse with attacks of constipation to which she is liable. There are also two maternal cousins who suffer from the same condition. Both her parents have dentures, their teeth having been removed many years ago for 'pyorrhoea'.

A. Spongy, easily-bleeding gums such as described, are quite common in cases in whom the well-known causes (e.g. scurvy, leukaemia, Vincent's infection, drugs, e.g. Phenytoin) can be excluded. During the war large-scale investigations and therapeutic trials were carried out on otherwise healthy vigorous soldiers—with no results. In other words the etiology is not known, and there is no specific remedy.

The condition in the lower canine areas may, however, be due to traumatogenic occlusion. Treatment: The bite must be toned down, the gum (redundant) must be removed and the gum and interstices must be massaged post-operatively by means of Stimudents (medicated, triangular-shaped sticks of soft wood). If these are unobtainable, substitutes should be used; also digital massage is recommended with toothpaste or tannic acid liniment 10% for some weeks.

If the condition is due to sluggish circulation in the gums, only massage with the fingers is necessary to promote the increase in tone.

Very often gums become chronically inflamed due to careless tooth-brushing. Correction of this fault in such cases solves the problem.

The apparent familial nature of the condition is probably a coincidence.

BOOK REVIEW

ENDOCRINOLOGY

L'Annee Endocrinologique. By M. Albeaux-Fernet, L. Bellot, J. Derebreux and M. Gelinet. (Pp. 143, 350 francs.) Paris: Masson et Cie. 1949.

Those with a knowledge of French will be interested in this first volume of an annual review series prepared for the publishers in the field of Endocrinology.

It is clear from the bibliography that the literature in English is very thoroughly covered, and the only handicap to what might otherwise be an extremely useful book for South African practitioners is the fact that it is only available in French.

CORRESPONDENCE

MENTAL DISORDER, CRIME AND SIN

To the Editor: During the past five years and more, I have had occasion to make a study at close quarters of psychiatrists, lunatics and criminals.

The criminals, I have found, try to bluff the psychiatrists—often with success. The lunatics, on the other hand, do not wittingly try to bluff the psychiatrists, but do, with considerable success, bluff themselves. The psychiatrists, finally, try to bluff both the criminals and the lunatics, seldom, as far as I could see, with any success.

This large-scale poker-game being played in law courts, mental hospitals, psychiatric consulting-rooms and gaols, has certain set rules.

From the point of view of the psychiatrists, the rules are more or less as follows:

1. The 'customer', according to whether it be a he or a she, has an Oedipus complex or an electra-complex, which is analogous to saying that they have 'incest-drives'.
2. The 'customer' is frustrated, the 'will to power' being held in check by economic, ethical or hereditary factors. He (or she) wants to be 'on top', but cannot get there. Certain psychiatrists of the Freudian persuasion narrow this drive to be 'on top' down to their own circumscribed field, sinking human beings down to the level of he-dogs, and she-dogs on heat.

From the point of view of the criminals, the rules are rather different:

1. The 'public' owes them an easy living and will not grant it.
2. The psychiatrists are 'mugs' who can be fooled into thinking that criminals are not legally responsible for their actions.

Thirdly, from the point of view of the lunatics (or mentally-ill people), the rules are somewhat like this:

1. 'I've got lots of worries. Nobody really loves me.'
2. 'Because nobody loves me, I hate everybody.'
3. 'Since everybody hates me, I am not bound by other people's laws. Therefore I am, justifiably, a law unto myself.'

The rules having been (subconsciously) appreciated by all participants—from their own point of view—the game commences.

The psychiatrists get hold of a criminal, and point out to him that he has not really been responsible for his actions. The trouble lies not in himself, but in his stars—his environment, his upbringing, his father, his mother, his endocrine glands, his 'organ-inferiority', his 'psychic traumata before the age of five'.

When, however, the psychiatrists get hold of a lunatic, they try to point out to him (or her) that he himself has been responsible for his actions. The trouble lies not in others, but in himself—in his silly ideas about guilt, both in others and in himself.

When the criminal acknowledges that he is *not* to blame, he has, technically, gained 'insight'.

When the lunatic acknowledges that he *is* to blame, and that nobody else is to blame, he has, technically, gained 'insight'. From this point, it would appear, he should now logically be treated as the criminal was treated: he must now be persuaded that he was not to blame—that

fundamentally the trouble lay not in himself, but in his stars —his environment, upbringing, etc., as before.

Now, Sir, my observations have convinced me that the exact opposite of the above holds true in reality.

The criminal, having committed crime, does not worry about the crime, as crime, i.e. his conscience does not worry him.

The lunatic, having committed crime, *while sane*, or having become party to somebody else's crime, *while sane*, worries about the crime. His (or her) conscience worries him. Furthermore, if somebody whom he or she loves commits crime, and he or she has to tell or live lies about such other loved one's actions in order to cover up the crime, his or her *opposition to* the whispering of conscience gives rise to mental trouble. It is not the conscience that is at fault. It is the 'Ego' that is at fault: and the 'Ego' is backed up in this matter by the 'Id', which likes ease, comfort and bodily rather than mental satisfaction.

There are, as we know, large numbers of crimes that people can commit—ranging through a circle from murder to suicide or self-murder.

Any of them can give rise to guilt-feelings. However, in our Western civilization, engrossed as it is with matters of sex, perhaps the commonest types of crimes that give rise to guilt-feelings in mentally healthy people are sex crimes.

Some such sex crimes can be briefly listed as: fornication, adultery, incest, tribady, pederasty, bestiality—in actual practice; and the same activities, in phantasy, to the accompaniment of the physical action of solitary masturbation.

Such activities, to criminally minded individuals, cause no arousal of conscience. In mentally healthy individuals, however, they do cause conscience-arousal and consequent conflict between the 'Ego' and the 'Super-Ego' or conscience.

These activities Christian and orthodox Jewish people look upon, as being sins or, as the dictionary defines it 'violations of the law of God'.

One can easily see in what a cleft stick present-day psychiatrists have been placed. They have three choices: 1. To uphold the concept of carnal sin as given; 2. To discard the concept of carnal sin *in toto*; 3. To discard part of the concept—particularly that part relating to fornication—and to uphold only the remainder.

Sigmund Freud took course (2). Numbers of present-day psychiatrists, not following Freud all the way, follow course (3). A few old-fashioned psychiatrists, I daresay, still follow course (1).

I, Sir, have great pleasure in aligning myself most wholeheartedly with such old-fashioned doctors who still uphold the concept of carnal sin as given in (1).

One of the reasons—apart from my Christian convictions, of which I make no secret—why I do so, is because I have two young daughters; whom I would most intensely dislike to see grow up with the idea that fornication is not only non-sinful, but even psychologically desirable—as is taught by Drs. Sigmund Freud, Wilhelm Stekel, Frankwood E. Williams, Alexander Herzberg and others.

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2. Stekel, Wilhelm. *Technique of Analytical Psychotherapy*, 1938-1939, Chapter 20: '*Psychoanalysis of Obsessional Disease*'.
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4. Herzberg, Alexander. *Active Psychotherapy*, 1945, Chapter 33.

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224, Brook Street,
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8 May 1950.

PART-TIME POSTS IN HOSPITALS

To the Editor: I am in complete agreement with 'Equity's' letter in the latest issue of the *Journal* concerning the action of certain of our colleagues who hold posts to which they do not give the requisite number of hours which they have contracted to do.

I desisted from applying for a certain post as I could not devote the requisite number of hours to it; but a colleague who is much more busy in private than I am has taken on this post, and he gives considerably less time to it than is called for in his contract.

I know of several more cases like this, and, to put it bluntly, I feel that these people are accepting money without complying fully with the conditions they have accepted.

I feel that if they cannot devote the time called for, they should, in all fairness, either resign their posts, or else they should inform the Province that they are being paid for time which they are not giving, and that they should ask for a reduction in their remunerations.

There is no doubt that soon there will be a stand-up tussle between the profession and the Province again, and then this irregular and unethical conduct of certain colleagues will be thrown up in our faces.

Apart from this, this conduct is unfair to other members of the profession.

I also feel that this matter is of sufficient import to warrant comment in your editorial columns.

'*Done out of a Post.*'

Johannesburg.
9 May 1950.

To the Editor: The Johannesburg *Star* of 10 May 1950, quotes an extract from a letter by *Equity* published in the 6 May 1950 issue of the *S.A. Medical Journal*.

The Superintendent of the Johannesburg Hospital informed a representative of the *Star* that no case had been brought to his notice of a member of the part-time medical staff of the Johannesburg Hospital not carrying out the duties required of him under the 'Free Hospitalization' Scheme. This information was published in the *Star*.

I do not know whether steps were taken to confirm the allegation made by *Equity*, but I doubt whether it is good policy to publish a letter in the *Journal* casting reflection on senior members of the profession, which the lay press may publicize to the detriment of the profession, unless there is certain proof that there has been a breach of faith on the part of certain senior members of the profession.

Lewis S. Robertson.

P.O. Box 413,
Johannesburg.
12 May 1950.

BRITISH MEDICAL ASSOCIATION CONFERENCE AND EXHIBITION, LIVERPOOL, 13—21 JULY 1950

To the Editor: Evans Medical Supplies, Ltd., Liverpool, will have a large stand (No. 53) at this Exhibition which will open in St. George's Hall on Monday, 17 July and remain open until Friday, 21 July. A special welcome will be given to all overseas doctors visiting their stand.

Dr. D. Riding, Medical Director of the Evans Biological Institute, will be one of the speakers at the Scientific Meetings of the Conference. His subject will be Vitamin B_{12}.

Evans Medical Supplies, Ltd., will be very pleased to have visits to their new modern factory at Speke and the Evans Biological Institute at Runcorn from all overseas doctors who will be in Liverpool for the Conference. A special visit to the Evans Biological Institute is being organized by the British Medical Association for Thursday, 20 July 1950, at 2.30 p.m.

Applications for tickets for this visit should be made direct to the British Medical Association and not to Speke. Evans Medical Supplies, Ltd., anticipate, however, that any overseas doctor unable to secure a ticket for the visit can be accommodated by them on that day or any day in the same week. As far as the new factory at Speke is concerned, no official visits have yet been arranged, but Evans Medical Supplies, Ltd., will be very glad to show doctors round at any time during the Conference week.

H. Smith,
Managing Director.
Evans Medical Supplies,
P.O. Box 6607,
Johannesburg.
10 May 1950.